Bulletin of the Museum of Comparative Zoology
AT HARVARD COLLEGE
Vol. 127, No. 1

THE GENERA OF THE SPIDER FAMILY THERIDIIDAE

By Herbert W. and Lorna R. Levi

With Fourteen Plates

CAMBRIDGE, MASS., U.S.A.
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No. 1 — *The Genera of the Spider Family Theridiidae*

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INTRODUCTION

Of the 140 theridiid genera only about twenty, those with representatives in North America and Europe, and a few whose members are common tropical species, are generally known.

Many of the less known genera were established during the 19th century, when the arrangement of eyes was considered to be of generic importance. This very unfortunate choice of character resulted in a system that, in theridiid spiders (and possibly in some other families), does not reflect natural relationships; indeed, individuals of many species may be variable in regard to the position of the eyes (Levi, 1960a). Furthermore, by present standards, many type species were inadequately described and some were not illustrated. Consequently, later zoologists found it easier to make new genera than to place their species correctly in established genera.

Unlike the species, the genus is a relatively arbitrary taxonomic category. It is a collective category and as such should contain more than one species. Optimum size for genera may be controversial and is probably different for each genus. Experience in other animal groups as well as in spiders has demonstrated that a system of few large genera is more workable than one of innumerable small genera. It is difficult, for instance, to place species in the many closely related genera of the family Salticidae, genera separated in many cases by artificial characters. Well-known cosmopolitan species have been placed in different genera and described as new by various arachnologists. The erigonid (Linyphiidae) genera are based on more natural characters, but as species only slightly outnumber genera of erigonids, the value of the larger category is lost. Because the limits of the genera have become extremely narrow, placement of new species in so fragmented a family is virtually impossible except by establishment of still more genera. Not only description and placement of new species, and sorting of collections in museums, but also the studies of ecology, behavior, and evolution are made difficult by numerous small genera. To us it appears that a large genus, even one containing several hundred species, is preferable to the many small monotypic genera that would result from breaking up genera like *Theridion* and *Argyrodes*. In case of doubt, a new species should be placed in the closest established genus, rather than in a new monotypic one. Since relationships between species or species groups is unlimited, phylogeny can never be adequately reflected in simple categories like genera, regardless of size. It is assumed, of course, that genera are monophyletic. Further discussion of the nature of higher categories can be found in Mayr (1942, pp. 280-291), Mayr et al. (1953, Chapter 3), and Simpson (1961, pp. 135-140). Problems in determining phylogeny are discussed in Hennig (1950).

At present we know probably less than ten percent of the theridiid fauna. Only the faunas of northern Europe (Wiehle, 1937; Tullgren, 1949; Locket and Millidge, 1953) and America north of Mexico (Kaston, 1946; Levi, 1953-1960; Exline and Levi, 1962) are well known. (These papers, however, include some species found in South and Central America, and other papers on species south of the United States are in manuscript. Many of the Panamanian *Dipoena* described by Chickering in 1943 and 1948 are widespread South American species.) This paper must, therefore, be considered preliminary and will have to be revised after the total fauna is known. It is hoped, however, that the key and new generic diagnoses will encourage others to work up the faunas yet to be described. A conservative treatment of genera makes possible the placement of new species without establishing a new genus for each. Several authors have emphasized the need for gaps between genera, a view we do not share. Many theridiid genera intergrade. Furthermore, we anticipate that extinct species, rediscovered as fossils, might very well bridge gaps between present day genera. Nevertheless, most species fit well within generic limits, and relatively few species fit equally into either of two related genera. The definition of theridiid genera is complicated by the tendency of genera to run into each other, making it impossible to group them into subfamilies. An exception may be that *Dipoena* and *Euryopis* seem to represent a separate line of evolution.

Travel to study types was made possible by a grant from the National Science Foundation (G-4317); a National Institutes of Health Grant (E-1944) made possible completion of the paper and publication. We are indebted to the following for hospitality at their institutions: Prof. M. Vachon, Muséum National d'Histoire Naturelle, Paris; Dr. E. Tortonese, Museo Civico di Storia Naturale, Genova; Dr. Baldasseroni, Zoological Institute, University of Florence; Dr. M. Beier and Dr. E. Kritscher, Naturhistorisches Museum, Wien; Dr. O. Kraus, Senckenberg Museum, Frankfurt; Dr. G. Owen Evans, Mr. E. Browning, and Mr. K. Hyatt, British Museum (Natural History); Prof. G. C. Varley, Hope Department of Entomology, Oxford University; Dr. L. Brundin, Naturhistoriska Riksmuseet, Stockholm. Prof. P. Zangheri of Parma made a special trip to Florence bringing with him specimens from his collection. The following sent us valuable specimens for examination: Prof. P. Drenski, Zoological Institute, and Dr. N. Atanassov, Naturhistorisches Museum, Bulgarian Academy of Sciences, Sofia; Dr. R. Forster, Otago Museum, Dunedin; Prof. T. Jaczewski, A. Riedel and J. Prószyński, Institute of Zoology, Polish Academy of Sciences, Warsaw; Mr. T. Yaginuma, Osaka; Prof. V. V. Hickman, University of Tasmania; and Dr. M. Birabén, Museum of La Plata. Prof. V. V. Hickman patiently raised *Ancocoelus livens* Simon for us making the study of adult males possible. Several European colleagues, particularly Prof. A. Kaestner, gave us suggestions for this study during discussions at the time of our visit. Dr. B. J. Kaston, Dr. R. Forster, Mrs. D. L. Frizzell (Dr. H. Exline) and Dr. O. Kraus read the manuscript and made valuable suggestions for its improvement.

Familial characters. Although fifty years ago it may have been easy to delimit the family Theridiidae, the recent discovery of numerous species intermediate between it and the related families Linyphiidae, Argiopidae, and Symphytognathidae, has obscured the limits of all these families. While discovery of these intermediate species has made a stimulating contribution to our knowledge of phylogeny, it has at the same time complicated the problem of defining higher taxonomic categories (Table 1).

One of the best and longest known theridiid familial characters, the comb on the fourth tarsus (Fig. 5), may be lacking (e.g. *Pholcomma,* some *Dipoena, Helvibis,* some *Argyrodes,* Fig. 6).

On the other hand, it may be present in members of the family Nesticidae. Although theridiids generally have a characteristic appearance, individual species may bridge the gap between related families. *Pocabletes coroniger* Simon [= *Graphomoa theridioides* Chamberlin], for instance, has many theridiid characters, although it is rightly placed in the Linyphiidae. Generally, in the Theridiidae, the paracymbium is a hook in the alveolus (Figs. 74, 216) or on the distal margin (Figs. 51, 245) of the cymbium of the male palpus, never on the base as in Argiopidae or Nesticidae, or a separate structure as in Linyphiidae. The palpus of Symphytognathidae is (probably secondarily) simple. The labium is usually not rebordered (swollen at the distal end) in Theridiidae, and there may be a seam between it and the sternum. Chelicerae are small, weak, and have a frontal, basal extension (Figs. 10, 13, 15, 17, 19, 21) hidden by the clypeus and only rarely absent (Fig. 12); cheliceral teeth are absent or few in number (rarely more than two, never more than four on the anterior margin, none or rarely one tooth or several minute denticles on the posterior margin). Teeth are borne on the ventral surface (Figs. 9-22). Linyphiid and argiopid spiders have the labium rebordered, have many teeth on both margins of the chelicerae, the chelicerae are stronger, lack of basal extension, and the tooth-bearing surface gently curves medially (Figs. 23-28). The majority of the theridiids lack a colulus (Fig. 1) or have it replaced by two setae (Fig. 2) (exceptions are *Argyrodes, Steatoda, Latrodectus, Robertus,* and *Crustulina,* Figs. 3, 4), while in Nesticidae, Linyphiidae, Argiopidae, Mimetidae and Theridiosomatidae the colulus is always large. Symphytognathidae usually have a large colulus; sometimes it is missing.

The theridiid web is irregular. Viscid threads around the periphery or toward the substratum break when an insect becomes entangled, and pull the insect toward the center of the web (Wiehle, 1931; Nielsen, 1931).

Generic characters. Genitalia prove reliable not only as specific characters but also as phylogenetic clues. Several non-genitalic characters correlate with the structure of the genitalia. In Theridiidae these include size of the colulus (Figs. 1-4) and, to some extent, number of teeth on the margins of the chelicerae (Figs. 9-22) (Levi, 1961). Cheliceral teeth, however, are expected to show some individual variability. In *Dipoena* and *Euryopis* the fangs of the chelicerae are very long and flat (Figs. 9-12), possibly a modification for catching ants.

TABLE 1. Diagnostic features of families close to Theridiidae.

	Theridiidae	Nesticidae	Symphytognathidae	Theridiosomatidae	Argiopidae	Linyphiidae
Chelicerae	no teeth or 1-3 teeth on promargin, rarely 1-3 teeth or denticles on retromargin	few teeth	many small teeth	many teeth	many teeth	many teeth
Labium	usually not swollen distally (rebordered) seam between labium and sternum	swollen distally seam	swollen distally seam	swollen distally seam	swollen distally seam (*Meta*) or free (*Araneus*)	swollen distally seam
Comb on tarsus IV	present, rarely absent	present	sometimes present	no comb	no comb	no comb
Colulus	absent replaced by 2 setae or large	large	large, sometimes absent	large	large	large
Attachment of palpal bulb in alveolus of cymbium	usually at proximal end of alveolus	in center of alveolus	in center of alveolus	in center of alveolus	in center of alveolus	in center of alveolus
Paracymbium	distal end of cymbium, behind bulb or on ectal margin	proximal end of cymbium on ectal margin	probably absent, or on middle of ectal margin	proximal end of cymbium on ectal margin	proximal end of cymbium on ectal margin	a separate sclerite

Eye size and arrangement, characters used by E. Simon and his contemporaries, appear to be unreliable, often varying within species (Levi, 1960a). Although Simon recognized the artificiality of a system based mainly on eye arrangements, some modern authors have used it as an infallible single character. On the other hand, several genera do have constant differences in eye arrangement, and these correlate with other characters. For instance, the lateral eyes are more separated in *Episinus* and *Latrodectus* than in other genera, and in *Episinus* the eyes may be on tubercles. The eyes of *Stemmops* (Fig. 188) and *Coscinida* (Figs. 144, 145) are large and close together.

Eye arrangement may reflect the shape of the carapace, a more important character and one harder to describe. The carapace of males of *Thymoites* is usually modified, although differently in different species (sometimes it is drawn out into an anterior turret bearing anterior median eyes; sometimes it has a groove in the clypeus) (Figs. 121-124, 132). The palpal structure of such males indicates close relationship. Although not closely related (judging by the presence of colulus, cheliceral structure and shape of abdomen), *Argyrodes* males may also have the anterior end of the carapace projecting. The clypeus may have a parallel projection or a seam (Figs. 299, 301). *Dipoena* has a characteristic carapace (Figs. 44-47) often reflected in the position and large size of the anterior median eyes; however, in many species of *Dipoena* the anterior median eyes are equal in size to the other eyes. Of 17 American species of *Dipoena* chosen at random, 9 had anterior median eyes larger than the other eyes, 8 had the anterior median eyes equal in size to the others (the large anterior median eyes are supposed to constitute a diagnostic feature of the genus!). The situation is similar in *Steatoda* (Levi, 1960a).

Although *Episinus* (Fig. 220) and *Anelosimus* (Fig. 184) generally have the carapace longer than in other genera, individual species may have the carapace relatively round. The ratio of carapace length to width varies in *Anelosimus* from 1.2 [*A. aulicum* (C. L. Koch)] to 2.5 [*A. chickeringi* Levi]; in *Episinus* from 1 [*E. panamensis* Levi] to 1.85 [*E. gratiosus* Bryant].

The thoracic groove is rarely of generic importance. There is generally no groove in the carapace of *Robertus*, but *R. vigerens* (Chamberlin and Ivie) has a long longitudinal groove, and

R. laticeps (Keyserling) a depression. A longitudinal depression is common in *Episinus*, but is not present in all species. The shape of the clypeus may be quite variable, even in closely related species (Figs. 44, 47; 123, 124; 299, 301). The labium in closely related species may be almost separated from the sternum (*Dipoena buccalis* Keyserling), or almost no seam may be visible between the two (*Dipoena atlantica* Chickering). Some of these characters, of course, may show individual variation that can be studied only in large series.

The relationship between length of eye region and length of carapace varies in different genera but can not be used as an absolute character, since there are many exceptions. The eye region is shortest in *Anelosimus* (Fig. 184) and some *Episinus* (Figs. 220, 221) and takes a relatively large proportion of the carapace in many *Dipoena* species (Fig. 46).

It is of interest that similar modification of the abdomen often reflects the same close relationship revealed by the genitalia (*Episinus,* Figs. 220, 221, 228; *Achaearanea,* Figs. 79-81; *Phoroncidia,* Figs. 235, 244, 247). Although hard to define, the degree of sclerotization is of generic importance (*Phoroncidia*). A heavily sclerotized spider may have an abdominal scutum, a sclerotized ring around the pedicel, or a sclerotized ring around the spinnerets. Heavy sclerotization is more likely to occur in small theridiids (or in those having a large colulus). However, heavy sclerotization occurs in many genera unrelated by genitalic characters, and may occur in individual species belonging to groups otherwise lightly sclerotized (*Styposis, Pholcomma*).

Relative proportions of leg length is another character unreliable for theridiid classification. Males and females usually have different leg proportions. While in females, the fourth leg is next to longest, usually the second leg is next to longest in males (*Theridion*). The first leg is longest in most genera. In *Stemmops, Euryopis, Theonoe* and *Phoroncidia*, the fourth leg is longest. In many genera, however, different species may have either the fourth or the first leg longest (*Chrosiothes, Dipoena, Enoplognatha, Pholcomma, Thymoites* and *Steatoda*). Often in one sex the first leg is longest, in the other, the fourth, for instance: *Chrosiothes tonala* (Levi), *Chrosiothes goodnightorum* (Levi), *Crustulina altera* Gertsch and Archer, *Enoplognatha joshua* Chamberlin and Ivie, and several *Thymoites* species. Often there is individual variation, so that either the first or fourth is longest (some *Steatoda* species). In general, smaller theridiids have proportionately shorter legs than larger species.

The shortest legs are found in the smallest species (as seen in *Comaroma, Theonoe, Pholcomma*), presumably, those living in litter; the longest legs are found in larger species (*Argyrodes, Chrysso* species), living in webs on vegetation. Leg length often shows geographical variation. In *Latrodectus mactans* (Fabricius) the first patella-tibia is 1.5 to 2.1 times the length of the carapace depending on the part of the range. Nevertheless, there is a superficial taxonomic relationship in leg length, showing many exceptions. In *Anelosimus* the first patella-tibia is 1.3 to 1.9 times the carapace length; however, in *A. rapununi* Levi the carapace and patella-tibia are of equal length. *Dipoena* has relatively short legs, the longest patella-tibia being 1 to 1.4 times the carapace length. In *D. buccalis* Keyserling, however, the male has the first patella-tibia twice the length of the carapace, while in the female it is one and one-half times the carapace length. In *Episinus* this proportion varies from 1.4 to 2.8, in *Chrysso* (admittedly a somewhat heterogeneous assemblage) from 1.2 to 5. Even closely related *Chrysso* species differ widely: 1.2 for the male of *C. mariae* Levi, 2.5 for the male of *C. sulcata* (Keyserling). *Euryopis* is the only genus in which some species have the third leg longer than the second; in all others the third is always shortest. It is of interest that the smallest theridiids generally have the tarsus relatively longer (*Theonoe, Pholcomma* species) than have the larger species. In *Euryopis spinigera* (O.P.-Cambridge) and related species, the tarsi and metatarsi are subequal in length; however in one (undescribed) species the metatarsi are slightly longer than the tarsi in the male and of the same length in the female. (All leg data were taken from the senior author's revision of North American theridiid spiders.) *Argyrodes* species have the middle tarsal claw longer than the lateral claws, possibly an adaptation to their parasitic habit of living in other spiders' webs.

Behavior, particularly web building, undoubtedly encompassing important characters, is relatively little known. Gerhardt (1923, Arch. Naturgesch., vol. 89, p. 64) indicates surprising differences in mating behavior in *Theridion varians* Hahn, on one hand, and *T. tepidariorum* C. L. Koch and *T. formosum* [= *lunatum* (Clerck)], on the other. The latter two species are now considered to belong to *Achaearanea*. However, we do not know whether other species of *Theridion* and *Achaearanea* behave like the species observed, and whether the behavior of *Enoplognatha* *ovata* (Clerck) whose behavior was similar to that of *Theridion* (and to linyphiids), is representative of the latter genus.

Unfortunately, the genitalic characters are often difficult to study and, for routine examination, impractical to apply. Often a slight modification of palpal sclerites may give the contracted palpus an appearance entirely different from that of related species. Furthermore, the paleontologist often tries to determine the genus of spiders lacking genitalia, a very difficult if not impossible task.

It has been suggested that genitalic characters be used only to separate species, and that characters other than those of genitalia be used to separate genera. Simpson (1961, p. 145) discusses this point: ''It would be a delightful simplification if the characters of organisms had an inherent association with the various categorical ranks. . . . A generic character is one that characterizes a genus, and is not determinable a priori. Identical characters may in one group characterize a species (or even be a mere variation in a species), in another a genus, and in another a family.''

Specific characters. Genitalia are usually the reliable characters by which species can be separated. In many genera an examination of the female internal genitalia is essential. Of course, new species (or subspecies) can not be described from juvenile specimens, and for species recognition clear illustrations of the ventral view of the palpus, the epigynum and the internal female genitalia are essential. There are all indications (from the study of North American species) that a large proportion of species are polytypic. This is probably also true in species of other families, but excessive splitting has obscured the variable nature of the species studied.

Despite the importance of genitalic characters, there are examples in the Theridiidae of nongenitalic characters that are of diagnostic importance for species. Although variable, the color and shape of the abdomen of adult female *Dipoena* species are distinct in many species having similar genitalia. The shape of the clypeus of adult males of species related to *Argyrodes caudatus* Taczanowski may be a character easier to observe than small differences in genitalia (Exline and Levi, 1962). There is some indication that in *Helvibis* differences in outline of the carapace constitute a far simpler specific character than slight differences in the very complex genitalia (Levi, in manuscript). But even for the study of these characters mature specimens are necessary.

Type collections. Although the indication of type specimens is established practice today, among 19th century arachnologists it was not. Keyserling did not indicate his types, and as he borrowed large collections from many individuals and institutions, the specimens on which his names are based are now in several different institutions in Europe and America. However, Keyserling kept duplicate specimens in his own collection, later acquired by the British Museum (Natural History). At the turn of the century, Pocock placed type labels into the vials containing species named by Keyserling. This may have been done at the time when all of Keyserling's original labels had to be rewritten because they were becoming faded and illegible. The labels of the Keyserling specimens in the Polish Academy of Sciences have also been rewritten. The type material is not indicated. Many specimens are in poor condition as if they had once been dry. The localities published by Keyserling are sometimes different from the ones on the labels, an error presumably made by Keyserling. Some of Keyserling's specimens in the Naturhistorisches Museum, Vienna, bear Brazilian labels but are actually European species. Keyserling's specimens in Berlin can not be found.

Simon's types are almost all in Paris in excellent care; a few have been lost. Like most of his contemporaries Simon did not indicate types. Often his vials marked with the name of a species contain specimens obviously belonging to several species of similar coloration. There is evidence that Simon put into the same vial all specimens that he considered to belong to a given species, with a single place name indicating the general region from which the specimens were collected. The labels are in clear handwriting on poor grade paper. Luckily most type species were based on single specimens so no lectotypes had to be chosen. Simon's specimens from St. Vincent Island are in the British Museum (Natural History).

The O.P.-Cambridge collection is at Oxford University, where they were placed to permit freer access than would have been possible at the British Museum.[1] Unfortunately, though the Hope Department of Entomology has both the Blackwall and the Cambridge collections, they never have succeeded in getting sufficient curatorial help. The faded labels of the Cambridge collection are nearly illegible, so that specimens are difficult to find. Cambridge specimens described in the Biologia Centrali-Americana volumes are stored in the British Museum (Natural History) in London.

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[1] A. W. P.-Cambridge, 1918, Memoir of the Reverend Octavius Pickard-Cambridge, Oxford.

Thorell's types, as far as is known, are distributed in many museums. We were told that several small institutions in Europe own type specimens of Thorell. Thorell did not indicate where his specimens were deposited, and they are virtually impossible to find. Many collections worked over by Thorell, however, are in the care of the Museo Civico di Storia Naturale, Genova, and some specimens are in the Naturhistoriska Riksmuseum, Stockholm. It is believed that many types of Thorell (for instance those of his Labrador collection and of most of his American spiders) are no longer in existence.

L. Koch types are kept in the British Museum (Natural History) in London.

Compared to specimens deposited in American museums, the types in the European museums visited are in far better physical condition. The specimens apparently have never been exposed to tannic acid of corks, the sulphur of rubber stoppers, or to drying out. They have always been kept in small cotton-plugged vials in larger jars, as is now the practice in this country.

Methods of study. Many type species of genera are known from only one specimen, sometimes juvenile, making their study, recognition and generic placement extremely difficult or impossible, and accounting for the remaining uncertainties. For adequate generic diagnosis, a knowledge of the genitalia of mature individuals of both sexes is essential.

Genera based on nominal species whose types were lost had to be ignored if their descriptions were inadequate.

The numerous fossil genera had to be ignored. Leg length and position of eyes, the characters most commonly used by paleontologists, can not be used alone to delimit genera, certainly not to diagnose species.

Only one type, that of *Dubiaranea* Mello-Leitão in the Museum in Rio de Janeiro, was not available to us. The description indicates that it is a Linyphiidae.

Many genera described in the Theridiidae were found to belong to other families. Probably similar revisions of other families will turn up genera that have to be placed in the Theridiidae.

The genitalia were examined in the usual way: Female epigyna were drawn in ventral view. After clearing in clove oil, the cleared epigynum was figured, showing the ducts and seminal receptacles. Often, with the specimen immersed in clove oil, three sides of the epigynum were cut, and the epigynum folded to the side to illustrate the dorsal aspect. Even though essential for a careful study, mounting the epigynum on a microscope slide is recommended only when many specimens are available. Not only is the epigynum more likely to be lost if imbedded in the relatively impermanent mounting medium, but there is also a likelihood that parts may warp if the mounting is not carefully done. (For specific diagnosis the illustration of the dorsal side of the epigynum is essential in most groups of Theridiidae, and the cleared ventral view in *Dipoena*). The palpi were drawn from the ventral side. In order to do this, some had to be amputated and later placed in a small (2x10 mm) vial plugged with cotton and kept with the specimen. The anatomy of the palpus was studied either by heating the palpus in 10 per cent sodium hydroxide for several minutes before transferring to distilled water, or by carefully teasing the palpus with fine needles. Often the latter method can be used without damage to any parts. A 10 per cent solution of sodium hydroxide may warp sclerites. Therefore, type species based on single males having just one palpus could be examined only superficially, and unique females often did not have their genitalia examined under a compound microscope.

The examination of cheliceral teeth was done under the dissecting microscope (144x magnification), and it may be possible that small denticles were overlooked. Even large teeth on colorless specimens are difficult to see. In common species the chelicerae were removed and examined under a compound or phase microscope. The examination of the colulus, while often easy, may be extremely difficult on minute colorless or white specimens in poor preservation.

In this paper, type species of valid genera and of genera considered synonyms for the first time are illustrated. An exception is that some American genera considered synonyms are illustrated in several papers in preparation. Several well known genera do not have the type species illustrated but have illustrations showing some of the diagnostic characters. The type species of these genera have been illustrated in revisions of American or European species.

An application to the International Commission on Zoological Nomenclature requests that its plenary powers be used to permit established usage of the generic names *Argyrodes, Robertus* and *Theonoe*, and to designate the type species for the genus *Dipoenura*.

Abbreviations used are: AMNH (American Museum of Natural History, New York); BMNH (British Museum, Natural History, London); HDE (Hope Department of Entomology, Oxford University, Oxford); MCZ (Museum of Comparative Zoology, Harvard University, Cambridge); MCSN (Museo Civico de Storia Naturale, Genova); MNHN (Muséum National d'Histoire Naturelle, Paris); NRS (Naturhistoriska Riksmuseum, Stockholm); PAS (Zoological Institute, Polish Academy of Sciences, Warsaw); SMF (Senckenberg Museum, Frankfurt).

Synonyms are subjective unless marked objective or OS. Valid genera recognized here are printed in capitals, synonyms in italics, and genera transferred to other families are in brackets.

Family THERIDIIDAE Sundevall

Theridiides Sundevall, 1833, Conspectus Arachnidum, p. 15 (an invalid original spelling for Theridiidae). Corrected to Theridiidae by later authors and listed in Official Index of Names for Taxa Belonging to the Family-Group Category in 1958 (Opinions and Declarations by the Int. Comm. Zool. Nomencl. no. 517). The invalid original spelling Theridiides and the erroneous subsequent spelling Theridionidae Simon, 1881, are listed in the Official Index of Rejected and Invalid Family-Group Names in Zoology. Type genus: *Theridion*.

NOMINAL GENERA IN ALPHABETICAL ORDER

Acanthomysmena Mello-Leitão, 1944, Rev. Museo La Plata, n.s., Zoologia, vol. 3, p. 323. Type species by original designation and monotypy: *A. spinifera* Mello-Leitão, 1944, *ibid.*, p. 324, fig. 4, ♂, from Argentina (Museum at La Plata, examined). Synonym of *Euryopis*.

Achaea O.P.-Cambridge, 1882, Proc. Zool. Soc. London, p. 428. Type species by monotypy: *A. insignis* O.P.-Cambridge, 1882, *ibid.*, pl. 30, fig. 5, ♂, from South America (HDE). [= *A. trapezoidalis* (Taczanowski)]. Homonym of *Achaea* Huebner, 1823. Objective synonym of *Achaearanea*.

ACHAEARANEA Strand, 1929, Acta Univ. Latviensis, vol. 20, pl. 11. New name for *Achaea* O.P.-Cambridge preoccupied. Synonyms: *Achaea* (OS), *Cryptachaea*, *Parasteatoda*, *Hentziectypus*.

Allodipoena Bryant, 1947, Psyche, vol. 54, p. 184. Type species by original designation and monotypy: *A. dianae* Bryant, 1947, *ibid.*, p. 184, figs. 1-4, ♀ ♂, from Puerto Rico (MCZ, examined) [= *Theridion atropunctatum* Petrunkevitch]. Synonym of *Theridion*.

Allotheridion Archer, "1946" [1947], Paper Alabama Mus. Nat. Hist., no. 22, p. 41. Type species by original designation: *Theridium murarium* Emerton, 1882, Trans. Connecticut Acad. Sci., vol. 6, p. 11, pl. 1, fig. 5, ♀ ♂, from the United States (MCZ, examined). Synonym of *Theridion*.

[*Anania* Thorell, 1895, Descriptive Catalogue of the Spiders of Burma, p. 148. Type species by monotypy: *A. bituberculata* Thorell, 1895, *ibid.*, from Burma (MCSN, examined). Homonym of *Anania* Huebner, 1823. Synonym of *Artonis*, Argiopidae.]

Ancocoelus Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 581. Type species by original designation and monotypy: *A. livens* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 150, ♀, from Tasmania (MNHN, examined). Synonym of *Steatoda*.

Ancylorrhanis Simon, 1894, Histoire Naturelle das Araignées, vol. 1, p. 592. Type species by original designation and monotypy: *Pholcomma hirsuta* Emerton, 1882, Trans. Connecticut Acad. Sci., vol. 6, p. 29, pl. 6, fig. 6, ♀ ♂, from North America (MCZ, examined). Synonym of *Pholcomma*.

ANELOSIMUS Simon, 1891, Ann. Soc. Ent. France, vol. 60, p. 11. Type species by monotypy: *A. socialis* Simon, 1891, *ibid.*, from Venezuela (MNHN) [= *A. eximius* (Keyserling)]. Synonym: *Kochiura*.

Archerius Levi, 1957, Trans. Amer. Micros. Soc., vol. 76, p. 114. Type species by original designation and monotypy: *A. mendocino* Levi, 1957, *op. cit.*, p. 115, figs. 38-47, ♀ ♂, from California (AMNH, examined). Synonym of *Comaroma*.

Arctachaea Levi, 1957, Psyche, vol. 64, p. 102. Type species by original designation: *A. pelyx* Levi, 1957, *op. cit.*, p. 104, pl. 8, figs. 3-6, 12, 13, map 1, ♀ ♂, from western North America (AMNH, examined). Synonym of *Chrysso*.

Argyria Yaginuma, 1957, Acta Arachnologica, vol. 15, p. 11. Type species by original designation and monotypy: *A. venusta* Yaginuma, 1957, *ibid.*, fig. 1, ♀ ♂, from Japan (examined). Homonym of *Argyria* Huebner, 1818 and *Argyria* Robineau-Desvoidy, 1863. Synonym of *Chrysso*.

Argyroaster Yaginuma, 1958, Acta Arachnologica, vol. 15, p. 37. New name for *Argyria* Yaginuma, 1957, preoccupied. (Not *Argyraster* Nakatsudi, 1948, an opilionid.) Synonym of *Chrysso*.

ARGYRODES Simon, 1864, Histoire Naturelle des Araignées, 1st ed., p. 253. Type species by tautonymy: *Linyphia argyrodes* Walckenaer, 1837, Histoire Naturelle des Insectes Aptères, vol. 2, p. 282 Thorell (1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 80) has designated *A. epeirae* Simon the type, a nominal species not originally included and thus not available. Homonym of *Argyrodes* Guenée, 1845. Synonyms: *Ariadne, Ariamnes, Rhomphaea, Conopistha, Faiditus, Bellinda, Argyrodina* (OS), *Neospintharus*. Usage strongly favors *Argyrodes* Simon since the senior homonym has not been used. (*Ariamnes* and *Rhomphaea* are older but have been used less than *Conopistha;* the latter has been in use for the last twenty years.)

Argyrodina Strand, 1928, Arch. Naturgesch., vol. 92, p. 42. New name for *Argyrodes* Simon, 1864, preoccupied. Objective synonym of *Argyrodes*.

Argyroelos Hogg, 1922, Proc. Zool. Soc. London, p. 288. Type species by monotypy: *A. micans* Hogg, 1922, *ibid.*, fig. 2, ♀, from Annam (BMNH, examined). Synonym of *Steatoda*.

Ariadne Doleschall, 1857, Nat. Tijdschr. Nederland Indie, vol. 13, p. 410. Type species by monotypy: *A. flagellum* Doleschall, 1857, *op. cit.*, p. 411, table 1, fig. 1, ♀, from Amboina Isl., South China Seas (in the Rijksmuseum, Leiden, examined). Homonym of *Ariadne* Horsfield, 1826; *Ariadne* Agassiz, 1845. Synonym of *Argyrodes.*

Ariamnes Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 37. New name for *Ariadne* Doleschall, 1857, preoccupied. Synonym of *Argyrodes.*

Armigera Marples, 1956, Rec. Auckland Inst. Mus., vol. 4, p. 335. Type species by monotypy: *A. turbotti* Marples, 1956, *op. cit.*, p. 336, fig. 4, ♂, from New Zealand (in the Auckland Museum). Synonym of *Pholcomma.*

[*Artonis* Simon, 1895, Histoire Naturelle des Araignées, vol. 1, p. 922. New name for *Anania* Thorell, preoccupied. Transferred to Argiopidae.]

Asagena Sundevall, 1833, Conspectus Arachnidum, p. 19. Type species designated by Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 97. *Asagena phalerata* (Panzer, 1801), Fauna Ins. Germ., no. 21, from Europe. Synonym of *Steatoda.*

Asagenella Schenkel, 1937, Festschr. Strand, vol. 3, p. 380. Type species by original designation: *Theridion erigoniformis* O.P.-Cambridge, 1872, Proc. Zool. Soc. London, p. 284, ♀ ♂, from Jordan (HDE, examined). Synonym of *Steatoda.*

Ataulfo O.P.-Cambridge, 1896, Biologia Centrali-Americana, Araneidea, vol. 1, p. 178. Type species by monotypy: *A. nugax* O.P.-Cambridge, 1896, *ibid.*, pl. 22, fig. 7, ♂, from Mexico (BMNH) [= *Stemmops bicolor* O.P.-Cambridge]. Objective synonym of *Stemmops.*

Atkinia Strand, 1929, Acta Univ. Latviensis, vol. 20, p. 14. New name for *Atkinsonia* O.P.-Cambridge, preoccupied. Synonym of *Euryopis.*

Atkinsonia O.P.-Cambridge, "1879" [1880], Proc. Zool. Soc. London, p. 691. Type species by monotypy: *A. nana* O.P.-Cambridge, 1879, *ibid.*, pl. 53, fig. 10, ♀ ♂, from New Zealand (HDE examined). Homonym of *Atkinsonia* Stainton, 1859. Synonym of *Euryopis.*

AUDIFIA Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 209. Type species by monotypy: *A. laevithorax* Keyserling, 1884, *op. cit.*, p. 210, ♀, from Brazil (MNHN, examined).

Bellinda Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 216. Type species by monotypy: *Theridion cancellatum* Hentz, 1850, Jour. Boston Soc. Nat. Hist., vol. 6, p. 278. Synonym of *Argyrodes.*

Brontosauriella Bristowe, 1938, Ann. Mag. Nat. Hist., ser. 11, vol. 2, p. 71. Type species by monotypy: *B. melloleitaoni* Bristowe, 1938, *op. cit.*, p. 72, figs. 8-13, ♂, from Brazil (BMNH, examined). Synonym of *Thymoites.*

[*Calodipoena* Gertsch and Davis, 1936, Amer. Mus. Novitates, no. 881, p. 8. Type species by original designation and monotypy: *C. incredula* Gertsch and Davis, 1936, *ibid.*, figs. 32, 33, ♀ ♂, from Texas (AMNH, examined). Synonym of *Mysmena;* transferred to Symphytognathidae.]

[*Centropelma* L. Koch, 1872, Die Arachniden Australiens, p. 246. Type species by monotypy: *C. bicolor* L. Koch, 1872, *ibid.*, pl. 20, figs. 5, 6, ♀ ♂, from Australia. Homonym of *Centropelma* Sclater and Salvin, 1869. Synonym of *Nicodamus*.]

CEPHALOBARES O.P.-Cambridge, "1870" [1871], Proc. Zool. Soc. London, p. 734. Type species by monotypy: *C. globiceps* O.P.-Cambridge, 1870, *op. cit.*, p. 735, pl. 44, fig. 4, ♂, from Ceylon (HDE, examined).

[*Cepheia* Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 589. Type species by original designation and monotypy: *Theonoe longiseta* Simon, 1881, Les Arachnides de France, vol. 5, p. 132, ♀ ♂, from southern France (MNHN, examined). Transferred to Symphytognathidae.]

CEROCIDA Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 508. Type species by original designation and monotypy: *C. strigosa* Simon, 1894, *ibid.*, ♀, from Venezuela (MNHN, examined).

Chacoca Badcock, 1932, Jour. Linn. Soc. London, Zool., vol. 38, p. 9. Type species designated by Bonnet, 1956: *C. antherata* Badcock, 1932, *op. cit.*, p. 10, fig. 5, ♂, from Paraguay (BMNH, examined) [= *Latrodectus curcaviensis* (Müller)]. Synonym of *Latrodectus*.

Chindellum Archer, 1950, Paper Alabama Mus. Nat. Hist., vol. 30, p. 12. Type species by original designation: *Theridion intervallatum* Emerton, 1915, Trans. Connecticut Acad. Sci., vol. 20, p. 136, pl. 1, fig. 1, ♂, from New Hampshire (MCZ, examined) [= *Theridion crispulum* Simon]. Synonym of *Theridion*.

[*Chorizoopes* O.P.-Cambridge, 1870, Proc. Zool. Soc. London, p. 737. (= *Chorizopes,* Thorell, 1895.) Type species by monotypy: *C. frontalis* O.P.-Cambridge, 1870, *op. cit.*, p. 738, pl. 44, fig. 6, ♀, from Ceylon (MNHN, examined). Transferred to Argiopidae.]

CHROSIOTHES Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 521. Type species by original designation and monotypy: *C. silvaticus* Simon, 1894, *ibid.*, ♀, from Venezuela (MNHN, examined). Synonym: *Theridiotis*.

CHRYSSO O.P.-Cambridge, 1882, Proc. Zool. Soc. London, p. 429. Type species by original designation: *C. albomaculata* O.P.-Cambridge, 1882, *ibid.*, pl. 30, fig. 6, ♂ ♀, from the Amazon (HDE, examined) [= *C. elegans* (Taczanowski)]. Synonyms: *Meotipa, Physcoa, Argyria, Argyroaster, Arctachaea*.

COLEOSOMA O.P.-Cambridge, 1882, Proc. Zool. Soc. London, p. 426. Type species by monotypy: *C. blandum* O.P.-Cambridge, 1882, *op. cit.*, p. 427, pl. 29, fig. 3, ♂, from Ceylon (HDE, examined).

COMAROMA Bertkau, 1889, Verhandl. Naturhist. Ver. Preuss. Rheinland Westfalen, vol. 46, p. 74. Type species by monotypy: *C. simoni* Bertkau, 1889, *ibid.*, p. 74 from southeastern Europe. (SMF, specimens determined by Wiehle examined; types examined by O. Kraus.) Synonym: *Archerius*.

Conopistha Karsch, 1881, Berliner Ent. Zeitschr., vol. 25, p. 39. Type species by original designation and monotypy: *C. Bona Dea* Karsch, 1881, *ibid.*, ♀ ♂, from Japan (probably lost). Synonym of *Argyrodes.*

Coressa Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 647. Type species by original designation and monotypy: *Walckenaera minutissima* O.P.-Cambridge, 1879, Ann. Mag. Nat. Hist., ser. 5, vol. 4, p. 203, pl. 12, fig. 7, from Europe. Synonym of *Theonoe.*

Coscinida Simon, 1894 (October), Histoire Naturelle des Araignées, vol. 1, p. 529. Type species by original designation: *C. tibialis* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 137, ♀ ♂, from Algeria (MNHN, examined). Synonyms: *Loxonychia, Theridiella.*

Craspedisia Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 580. Type species by original designation and monotypy: *Umfila cornuta* Keyserling, 1891, Die Spinnen Amerikas, Brasilianische Spinnen, p. 222, pl. 8, fig. 163, ♂, from Brazil (BMNH, examined).

Crustulina Menge, 1868, Schrift. Naturf. Gesell. Danzig, n.s., vol. 2, p. 168. Type species by monotypy: *Theridium guttatum* Wider, 1834, *in* Reuss, Abhandl. Mus. Senckenbergianum, vol. 1, p. 241, tab. 16, fig. 7, ♀ ♂, from Europe.

Cryptachaea Archer, "1946" [1947], Paper Alabama Mus. Nat. Hist., no. 22, p. 36. Type species by original designation: *Theridion catapetraeum* Gertsch and Archer, 1942, Amer. Mus. Novitates, no. 1171, p. 10, fig. 7, ♀, from Florida (AMNH, examined) [= *Achaearanea porteri* (Banks)]. Synonym of *Achaearanea.*

Ctenium Menge, 1871, Schrift. Naturf. Gesell. Danzig, n.s., vol. 2, p. 292. Type species by monotypy: *Erigone pinguis* Westring, 1861, Araneae Suecicae, p. 269, ♀ ♂, from Europe [= *Robertus lividus* (Blackwall)]. Synonym of *Robertus.*

Cyllognatha L. Koch, 1872, Die Arachniden Australiens, p. 248. Type species by monotypy: *C. subtilis* Koch, 1872, *op. cit.*, p. 249, pl. 20, fig. 7, ♀ ♂, from Samoa (BMNH, examined).

Deliana Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, pt. 2, p. 35. Type species by monotypy: *D. spinithorax* Keyserling, 1886, *ibid.*, ♀, from Brazil (PAS, examined). Synonym of *Dipoena.*

Diaprocorus Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 529. Type species by original designation and monotypy: *D. multipunctatus* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 137, ♀, from Australia (MNHN, examined). Synonym of *Euryopis.*

Dipoena Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 91. Type species by original designation: *Atea melanogaster* C. L. Koch, 1837, Uebersicht Arachn. Syst., vol. 1, p. 4, from Germany. Synonyms: *Pachydactylus, Lasaeola, Deliana, Umfila, Trigonobothrys, Stictoxena* and *Paoningia.*

Dipoenoides Chamberlin, 1925, Bull. Mus. Comp. Zool., vol. 67, no. 4, p. 215. Type species by original designation and monotypy: *D. apachecus* Chamberlin, 1925, *ibid.*, ♂, from Arizona (MCZ, examined) [= *Euryopis scriptipes* Banks]. Synonym of *Euryopis.*

Dipoenura Simon, 1908, Bull. Sci. France, Belgique, vol. 42, p. 95. Type species *D. fimbriata* Simon, 1908, *ibid.*, ♀ ♂, from Tonkin, Indochina (MNHN, examined). Bonnet, 1956, Bibliographia Araneorum, vol. 2, p. 1515 discussed the type designation problem of this genus. In the interests of nomenclatural stability we have followed Bonnet.

Drepanodus Menge, 1869, Schrift. Naturf. Gesell. Danzig, n.s., vol. 2, p. 241. Type species by monotypy: *D. obscurus* Menge, 1869, *op. cit.*, p. 242, pl. 47, tab. 141, from Europe [= *Enoplognatha thoracica* (Hahn)]. Homonym of *Drepanodus* Pander, 1856. Synonym of *Enoplognatha.*

[*Dubiaranea* Mello-Leitão, 1943, Arq. Mus. Nac. Rio de Janeiro, vol. 37, p. 166. Type species by original designation and monotypy: *D. argenteovittata* Mello-Leitão, 1943, *op. cit.*, p. 167, fig. 10, ♀, from Rio Grande do Sul (in the Museo Nacional, Rio de Janeiro, not available for study). Probably Linyphiidae.]

[*Eidmannella* Roewer, 1935, Veröff. Deutschen Kolonial Uebersee Mus., ser. 1, vol. 2, p. 195. Type species by monotypy: *E. attae* Roewer, 1935, *op. cit.*, p. 196, tab. 10, fig. 3, ♀ ♂, from Brazil (SMF, examined) [= *Nesticus pallidus* Emerton]. In family Nesticidae.]

Emertonella Bryant, 1945, Psyche, vol. 52, p. 182. Type species by original designation and monotypy: *Euryopis emertoni* Bryant, 1933, Bull. Mus. Comp. Zool., vol. 74, no. 6, p. 172, pl. 1, fig. 1, ♂, from southeastern United States (MCZ, examined). Synonym of *Euryopis.*

Enoplognatha Pavesi, 1880, Ann. Mus. Civ. Stor. Nat. Genova, vol. 15, p. 325. Type species by original designation and monotypy: *Theridion mandibulare* Lucas, "1849" [1846], Expl. Sci. Algérie Zool., vol. 1, p. 260, pl. 17, fig. 1, ♂, from Europe. *Enoplognatha* is listed in the Official List of Generic Names in Zoology, name no. 1273, Opinion 517, 1958. Synonyms: *Drepanodus, Phyllonethis, Symopagia, Marmatha,* and *Rugatha.*

[*Enthorodera* Simon, 1907, Ann. Mus. Civ. Stor. Nat. Genova, vol. 43, p. 264. Type species by monotypy: *E. atricolor* Simon, 1907, *op. cit.*, p. 265, ♀, from Africa (MCSN, examined). Transferred to Theridiosomatidae.]

[*Epecthina* Simon, 1895, Histoire Naturelle des Araignées, vol. 1, p. 924. Type species by original designation and monotypy: *E. circinata* Simon. Family Symphytognathidae.]

[*Epecthinula* Simon, 1903, Ann. Soc. Ent. Belgique, vol. 47, p. 27. Type species by monotypy: *E. minutissima* Simon, 1903, *ibid.*, p. 27, from Jamaica. Family Symphytognathidae.]

Episinopsis Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 522. Type species by original designation: *E. rhomboidalis* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 163, ♀, from Malaya (MNHN, examined). Synonym of *Episinus.*

Episinus Latreille, 1809, Genera Crustaceorum et Insectorum, vol. 4, p. 371. Type species by monotypy: *E. truncatus* Latreille, 1809, *ibid.*, from Europe. Synonyms: *Moneta, Janulus, Penictis, Plocamis, Episinopsis, Hyocrea, Hyptimorpha,* and *Janula.*

Eucharia C. L. Koch, ''1836'' [? 1835], *in* Panzer, Faunae Insectorum Germaniae, Heft 134 [not seen]. According to Bonnet, 1956, Bibliographia Araneorum, vol. 2, p. 1805, *E. bipunctata* and *E. hera* (= *castanea*) are types. Preoccupied by *Eucharia* Hübner, 1802. Synonym of *Steatoda.*

EURYOPIS Menge, 1868, Schrift. Naturf. Gesell. Danzig, n.s., vol. 2, p. 174. Type species designated by Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 96: *E. flavomaculata* (C. L. Koch), 1836, Die Arachniden, vol. 3, p. 67, fig. 220, ♀, from Europe. Synonyms: *Phycus, Atkinsonia, Phycosoma, ?Mastostigmus, Phylarchus, Diaprocorus, Dipoenoides, Atkinia, Acanthomysmena, Emertonella,* and *Mufila.*

[*Euxinella* Drensky, 1938, Festschr. Strand, vol. 4, p. 570. Type species by monotypy: *E. strandi* Drensky, 1938, *op. cit.*, p. 571, ♀ ♂, from Bulgaria (Naturhistorisches Museum, Sofia, examined). [Close to *Titanoeca albomaculata* (Lucas).] Transferred to Amaurobiidae.]

Faiditus Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 158. Type species designated by Petrunkevitch, 1928, Trans. Connecticut Acad. Sci., vol. 29, p. 118: *F. ecaudatus* Keyserling, 1884, *ibid.*, p. 158, pl. 7, fig. 9, from northeastern South America, ♀, (PAS, examined). Synonym of *Argyrodes.*

Formicinoides Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 213. Type species designated by Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 508: *F. brasiliana* Keyserling, 1884, *op. cit.*, p. 214, pl. 10, fig. 128, ♀, from the Amazon (MNHN, examined). Synonym of *Helvibis.*

Garricola Chamberlin, 1916, Bull. Mus. Comp. Zool., vol. 60, p. 231. Type species by original designation and monotypy: *G. sanctus* Chamberlin, 1916, *ibid.*, pl. 16, figs. 5-7, ♀, from Peru (MCZ, examined). Synonym of *Thymoites.*

Garritus Chamberlin and Ivie, 1933, Bull. Univ. Utah, biol. ser., vol. 2, no. 2, p. 9. Type species by original designation and monotypy: *G. vigerens* Chamberlin and Ivie, 1933, *ibid.*, pl. 2, figs. 10-20, ♀ ♂, from Utah (in the University of Utah Collection). Synonym of *Robertus.*

Gnophomytis Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 560. Type species by original designation and monotypy: *G. variolosa* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 148, ♀, from Venezuela. No specimens known to exist. Species description not recognizable. May be a synonym of *Phoroncidia.*

HELVIBIS Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 172. Type species designated by Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 507: *H. thorelli* Keyserling, 1884, *ibid.*, ♀, from Peru (BMNH, examined). Synonym: *Formicinoides.*

Hentziectypus Archer, ''1946'' [1947], Paper Alabama Mus. Nat. Hist., no. 22, p. 51. Type species by original designation: *Theridion globosum* Hentz, 1850, Jour. Boston Soc. Nat. Hist., vol. 6, p. 279, pl. 9, fig. 23, from Alabama. Synonym of *Achaearanea.*

Heribertus Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, pt. 2, p. 27. Type species by monotypy: *H. rubromaculatus* Keyserling, 1886, *op. cit.*, p. 28, ♂, from Brazil (MNHN, examined). Synonym of *Phoroncidia.*

Hetschkia Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, pt. 2, p. 246. Type species by monotypy: *H. gracilis* Keyserling, 1886, *op. cit.*, p. 247, ♂, from Brazil (BMNH, examined).

[*Hexablemma* Berland, 1920, Aranea II *in* Voy. Alluaud et Jeannel Afrique Orientale, p. 167. Type species by monotypy: *H. cataphractum* Berland, 1920, *ibid.*, figs. 205-210, ♀, from Africa (MNHN, examined). Belongs to Tetrablemmidae.]

Hildbolda Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 157. Type species by monotypy: *H. simoni* Keyserling, 1884, *ibid.*, pl. 7, fig. 97, specimens labeled from Brazil [misprinted as Massachusetts] (MNHN, examined). Synonym of *Thwaitesia.*

Histagonia Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 585. Type species by original designation and monotypy: *H. deserticola* Simon, 1894, *ibid.*, ♀ ♂, from South Africa (MNHN, examined).

Hubba, O.P.-Cambridge, 1897, Biologia Centrali-Americana, Araneidea, vol. 1, p. 231. Type species by monotypy: *H. insignis* O.P.-Cambridge, 1897, *ibid.*, pl. 30, fig. 4, ♂, from Guatemala (BMNH). Synonym of *Thymoites.*

Hyocrea Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 559. Type species by original designation and monotypy: *H. implexa* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 147, ♀, from Venezuela (MNHN, examined). Synonym of *Episinus.*

Hypobares Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 552. Type species by original designation and monotypy: *H. unisignatus* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 144, ♂, from Venezuela (MNHN, examined). Synonym of *Thymoites.*

Hyptimorpha Strand, 1906, Abh. Senckenberg Ges., vol. 30, p. 135. Type species by original designation and monotypy: *H. mirabilis* Bösenberg and Strand, 1906, *op. cit.*, p. 136, pl. 11, fig. 227, ♀, from Japan (SMF, examined). Synonym of *Episinus.*

Iardinis Simon, 1899, Ann. Soc. Ent. Belgique, vol. 43, p. 87. Type species by monotypy: *I. weyseri* Simon, 1899, *ibid.*, ♀, from Sumatra. No specimens known to exist. Species description not recognizable. Probably in Pholcidae. Might be a synonym of *Styposis.*

Icona Forster, 1955, Rec. Dominion Mus., vol. 2, p. 189. Type species by original designation and monotypy: *I. alba* Forster, 1955, *op. cit.*, p. 190, figs. 35-39, ♀ ♂, from Auckland Isl. south of New Zealand (Canterbury Museum, New Zealand, examined).

Janula Strand, 1932, Folia Zool. Hydrobiol., vol. 4, p. 139. New name for *Janulus* Thorell, preoccupied. Synonym of *Episinus.*

Janulus Thorell, 1881, Ann. Mus. Civ. Stor. Nat. Genova, vol. 17, p. 163. Type species by original designation and monotypy: *J. bicornis* Thorell, 1881, *ibid.*, ♀, from Cape York, Australia. Homonym of *Janulus* Lowe, 1852. Synonym of *Episinus.*

Kochiura Archer, 1950, Paper Alabama Mus. Nat. Hist., no. 30, p. 16. Type species by original designation and monotypy: *Theridium aulicum* C. L. Koch, 1838, Die Arachniden, vol. 4, p. 115, fig. 323, ♀, from Europe. Synonym of *Anelosimus.*

Lasaeola Simon, 1881, Les Arachnides de France, vol. 5, p. 136. New name for *Pachydactylus* Menge, 1868, preoccupied. Synonym of *Dipoena.*

LATRODECTUS Walckenaer, 1805, Tableau des Aranéides, p. 81. Type species designated by Latreille, 1810, Considérations général sur l'ordre natural des Animaux, p. 424; *Aranea 13-guttatus* Rossi, 1794, Fauna Etrusca Aranea, vol. 2, p. 136, pl. 9, fig. 13 [= *L. mactans tredecimguttatus* (Rossi)], from Mediterranean countries. Synonym: *Chacoca.*

[*Liger* O.P.-Cambridge, 1896, Biologia Centrali-Americana, Araneidea, vol. 1, p. 210. Type species by monotypy: *L. incompta* O.P.-Cambridge, 1896, *ibid.*, pl. 28, fig. 6, ♂, from Guatemala (BMNH, examined). Transferred to Linyphiidae.]

Lithyphantes Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, no. 5, p. 94. Type species by original designation and monotypy: *Aranea carollata* Linnaeus, 1758, Systema Naturae, ed. 10, vol. 1, p. 621, from Europe and North America [= *Steatoda albomaculata* (De Geer)]. Synonym of *Steatoda.*

Loxonychia Tullgren, 1910, *in* Sjoestedt, Ergeb. Schwedischen Exped. in Kilimandjaro, vol. 3, p. 125. Type species by monotypy: *L. lugubris* Tullgren, 1910, *ibid.*, pl. 2, fig. 40, ♂, from Kilimanjaro, east Africa (NRS, examined). Synonym of *Coscinida.*

Marmatha Chamberlin and Ivie, 1942, Bull. Univ. Utah, biol. ser., vol. 7, no. 1, p. 40. Type species by original designation: *Theridion marmoratum* Hentz, 1850, Jour. Boston Soc. Nat. Hist., vol. 6, p. 273, pl. 9, fig. 3, ♀, from North America. Synonym of *Enoplognatha.*

Mastostigmus Simon, ''1888'' [1889], Ann. Soc. Ent. France, ser. 6, vol. 8, p. 230. Type species by monotypy: *M. decemperlatus* Simon, 1888, *ibid.*, ♂, from Madagascar. No specimens known to exist. Species description not recognizable. Probably a synonym of *Euryopis.*

[*Mecynidis* Simon, 1894, Histoire Naturelle des Araignées, vol. 1. p. 507. Type species by original designation and monotypy: *M. dentipalpis* Simon, 1894, *ibid.*, ♂, from Transvaal (MNHN, examined). Probably Argiopidae or Linyphiidae.]

Meotipa Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 519. Type species by original designation: *M. picturata* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 133, ♀, from India (MNHN, examined). Synonym of *Chrysso.*

Mesopneustes O.P.-Cambridge, 1894, Biologia Centrali-Americana, Araneidea, vol. 1, p. 126. Type species by monotypy: *M. nigrovittata* O.P.-Cambridge, 1894, *ibid.*, pl. 17, figs. 3, 4, ♂, from Mexico (BMNH) [= *Theridula gonygaster* (Simon)]. Synonym of *Theridula.*

Mettus O.P.-Cambridge, 1899, Biologia Centrali-Americana, Araneidea, vol. 1, p. 292. Type species by monotypy: *M. reclivis* O.P.-Cambridge, 1899, *op. cit.*, p. 293, pl. 38, fig. 8, ♀, from Mexico (BMNH) [= *Stemmops bicolor* O.P.-Cambridge]. Synonym of *Stemmops.*

[*Microdipoena* Banks, 1895, Jour. New York Ent. Soc., vol. 3, p. 84. Type species by monotypy: *M. guttata* Banks, 1895, *op. cit.*, p. 85, ♂, from New York (MCZ, examined). Synonym of *Mysmena*. Transferred to Symphytognathidae.]

[*Micropholcomma* Crosby and Bishop, 1927, Jour. New York Ent. Soc., vol. 35, p. 152. Type species by original designation and monotypy: *M. caeligenus* Crosby and Bishop, 1927, *ibid.*, ♂, from Australia (in collection of Cornell University, Ithaca, New York). Transferred to Symphytognathidae.]

Moero O.P.-Cambridge, 1904, Ann. South African Mus., vol. 3, p. 156. Type species by monotypy: *M. quadrimaculata* O.P.-Cambridge, 1904, *op. cit.*, p. 157, pl. 11, fig. 4, ♀ ♂, from South Africa (specimens lost). Probably a synonym of *Steatoda*.

Molione Thorell, 1892, Boll. Soc. Ent. Italiana, vol. 24, p. 215. Type species by original designation and monotypy: *M. triacantha* Thorell, 1892, *op. cit.*, p. 216, ♀, from Singapore (NRS, examined).

Moneta O.P.-Cambridge, "1870" [1871], Proc. Zool. Soc. London, p. 736. Type species by monotypy: *M. spinigera* O.P.-Cambridge, 1870, *ibid.*, pl. 44, fig. 5, ♀, from Ceylon (BMNH, examined). Synonym of *Episinus*.

Mufila Bryant, 1949, Psyche, vol. 56, p. 66. Type species by original designation and monotypy: *M. texana* Bryant, 1949, *op. cit.*, p. 67, fig. 1, ♂, from Texas (MCZ, examined) [= *Euryopis bryantae* Levi]. Synonym of *Euryopis*.

[*Mysmena* Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 588. Type species by original designation and monotypy: *Theridion leucoplagiatum* Simon, 1879, Bull. Soc. Zool. France, vol. 4, p. 258, ♀ ♂, from southern France (MNHN, examined). Transferred to Symphytognathidae.]

[*Mysmenopsis* Simon, "1897" [1898], Proc. Zool. Soc. London, p. 865. Type species designated by Simon, 1903, Histoire Naturelle des Araignées, vol. 2, p. 991: *M. femoralis* Simon, 1897, *ibid.*, ♀, from St. Vincent Island, Lesser Antilles (BMNH, examined). Transferred to Symphytognathidae.]

Neospintharus Exline, 1950, Studies Honoring Trevor Kincaid, Univ. Washington Press, p. 112. Type species by original designation and monotypy: *N. parvus* Exline, 1950, *ibid.*, pl. 1, figs. 2, 4, ♀, from Ecuador (specimen lost). Synonym of *Argyrodes*.

Neottiura Menge, 1868, Schrift. naturf. Gesell. Danzig, n.s., vol. 2, p. 162. Type species by monotypy: *Aranea bimaculata* Linnaeus, 1767, Systema Naturae, ed. 12, p. 1033, from Europe. Synonym of *Theridion*.

Nesticodes Archer, 1950, Paper Alabama Mus. Nat. Hist., no. 30, p. 22. Type species by original designation and monotypy: *Theridion rufipes* Lucas, "1846" [1849], Expl. Sci. Algérie Zool., pt. 1, p. 263, pl. 16, fig. 5, ♀. Synonym of *Theridion*.

[*Nicodamus* Simon, ''1887'' [1888], Ann. Soc. Ent. France, ser. 6, vol. 7, Bull., p. cxciv. New name for *Centropelma* L. Koch preoccupied. R. R. Forster (*in lett.*) suggested that this genus belongs to the family Zodariidae.]

Onesinda O.P.-Cambridge, 1895, Proc. Dorset Nat. Club, vol. 16, p. 104. Type species by monotypy: *Walckenaera minutissima* O.P.-Cambridge, 1879, Ann. Mag. Nat. Hist., ser. 5, vol. 4, p. 203, pl. 12, fig. 7. Synonym of *Theonoe.*

Oronota Simon, 1871, Ann. Soc. Ent. France, ser. 5, vol. 1, Bull., p. vii. Type species by original designation and monotypy: *Epeira paradoxa* Lucas, ''1849'' [1846], Expl. Sci. Algérie Zool., vol. 1, p. 251, pl. 15, fig. 7, ♀, from Mediterranean countries. Synonym of *Phoroncidia.*

Oroodes Simon, 1873, Mem. Soc. Roy. Sci. Liége, ser. 2, vol. 5, p. 127. Type species by monotypy: *Epeira paradoxa* Lucas, ''1849'' [1846], Expl. Sci. Algérie Zool., vol. 1, p. 251, pl. 15, fig. 7, ♀, from Mediterranean countries. Synonym of *Phoroncidia.*

Pachydactylus Menge, 1868, Schrift. naturf. Gesell, Danzig, n.s., vol. 2, p. 176. Type species by monotypy: *P. pronus* Menge, 1868, *op. cit.*, p. 177, pl. 33, tab. 80, from Europe. Homonym of *Pachydactylus* Wiegmann, 1834. Synonym of *Dipoena.*

[*Paculla* Simon ''1887'' [1888], Ann. Soc. Ent. France, ser. 6, vol. 7, Bull., p. cxciv. New name for *Phaedima* Thorell, preoccupied. Belongs to family Tetrablemmidae.]

Paidisca Bishop and Crosby, 1926, Jour. Elisha Mitchell Sci. Soc., vol. 41, p. 178. Type species by original designation and monotypy: *Histagonia marxi* Crosby, 1906, Canadian Ent., vol. 38, p. 309, figs. 35-36, ♀ ♂, from North America. Synonym of *Thymoites.*

Paidiscura Archer, 1950, Paper Alabama Mus. Nat. Hist., no. 30, p. 26. Type species by original designation and monotypy: *Theridion pallens* Blackwall, 1834, Researches in Zoology, p. 357, ♀, from Europe. Synonym of *Theridion.*

Paoningia Schenkel, 1936, Arkiv Zool., vol. 29, p. 41. Type species by monotypy: *P. turriceps* Schenkel, 1936, *op. cit.*, p. 42, fig. 12, ♂, from China (NRS, examined). Synonym of *Dipoena.*

Parasteatoda Archer, ''1946'' [1947], Paper Alabama Mus. Nat. Hist., no. 22, p. 38. Type species by original designation: *Theridium tepidariorum* C. L. Koch, 1841, Die Arachniden, vol. 8, p. 75, figs. 646-648, ♀ ♂, from Europe. Synonym of *Achaearanea.*

PARATHERIDULA Levi, 1957, Trans. Amer. Micros. Soc., vol. 76, p. 105. Type species by original designation and monotypy: *Mysmena quadrimaculata* Banks, 1896, Trans. Amer. Ent. Soc., vol. 23, p. 66, ♀ ♂, from North America (MCZ, examined) [= *Paratheridula perniciosa* (Keyserling)].

[*Paurotylus* Tullgren, 1910, *in* Sjoestedt, Ergeb. Schwedischen Exped. Kilimandjaro, vol. 3, p. 171. Type species by monotypy: *P. depressus* Tullgren, 1910, *ibid.*, pl. 4, fig. 125, ♂, from east Africa (NRS, examined). Transferred to Argiopidae.]

Pedanostethus Simon, 1884, Les Arachnides de France, vol. 5, p. 195. New name for *Ctenium* Menge, erroneously thought preoccupied. Synonym of *Robertus*.

Penictis Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 520. Type species by original designaton: *P. mucronata* Simon, 1894, *ibid.*, ♀, from Singapore (MNHN, examined). Synonym of *Episinus*.

[*Perania* Thorell, 1890, Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. 8, p. 315. Type species by original designation and monotypy: *P. pallida* Thorell, 1890, *ibid.*, from Sumatra (MCSN, examined). Probably Tetrablemmidae.]

[*Phaedima* Thorell, 1881, Ann. Mus. Civ. Stor. Nat. Genova, vol. 17, p. 232. Type species by original designation and monotypy: *P. granulosa* Thorell, 1881, *op. cit.*, p. 233, ♂ (MCSN, examined). Homonym of *Phaedima* Robineau-Desvoidy, 1863. Synonym of *Paculla*, transferred to Tetrablemmidae.]

Phaetoticus Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 552. Type species by original designation and monotypy: *P. modestus* Simon, 1894, *ibid.*, ♀, from Ceylon (MNHN, examined). Synonym of *Theridion*.

Philto Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 552. Type species by original designation and monotypy: *P. subtilis* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 145, ♂, from Zanzibar (MNHN, examined). Synonym of *Thymoites*.

PHOLCOMMA Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, no. 5, p. 98. Type species by original designation and monotypy: *Theridion projectum* O.P.-Cambridge, 1862, Zoologist, vol. 20, p. 7962, ♀ ♂, from Europe [= *Pholcomma gibbum* (Westring)]. Synonyms: *Ancylorrhanis*, *Armigera*.

PHORONCIDIA Westwood, 1835, Zool. Jour., vol. 5, p. 452. Type species by monotypy: *P. aculeata* Westwood, 1835, *op. cit.*, p. 453, tab. 22, fig. 9, ♀ ♂, from Malaya (MNHN, specimen determined by Berland examined). Synonyms: *Tricantha*, *Trithena*, *Oronota*, *Ulesanis*, *Stegosoma*, *Oroodes*, *Sclerogaster*, *Sudabe*, ? *Wibrada*, *Heribertus*, and *Gnophomytis*.

Phycosoma O.P.-Cambridge, ''1879'' [1880], Proc. Zool. Soc. London, p. 692. Type species by monotypy: *P. oecobioides* O.P.-Cambridge, 1879, *ibid.*, pl. 52, fig. 6, ♀, from New Zealand (HDE, examined). Synonym of *Euryopis*.

Phycus O.P.-Cambridge, ''1870'' [1871], Proc. Zool. Soc. London, p. 742. Type species by monotypy: *P. brevis* O.P.-Cambridge, 1870, *op. cit.*, p. 743, pl. 44, fig. 9, juv., from Ceylon (HDE, examined) [? = *Euryopis taczanowskii* Keyserling]. Homonym of *Phycus* Walker, 1850. Synonym of *Euryopis*.

Phylarchus Simon, ''1888'' [1889], Ann. Soc. Ent. France, ser. 6, vol. 8, p. 242. New name for *Phycus* O.P.-Cambridge, 1871, preoccupied. Synonym of *Euryopis*.

Phylloneta Archer, 1950, Paper Alabama Mus. Nat. Hist., no. 30, p. 19. Type species by original designation: *Theridion pictipes* Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 64, pl. 3, fig. 38, from Florida. Synonym of *Theridion.*

Phyllonethis Thorell, 1869, Nova Acta Reg. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 90. Type species by original designation: *Araneus lineatus* Clerck, 1757, Svenska Spindler, p. 60, pl. 3, fig. 10, ♀, from Europe [= *Enoplognatha ovata* (Clerck)]. *Phyllonethis* has been suppressed under the Plenary Powers of the Int. Comm. Zool. Nomencl. and the name listed on the Official Index of Rejected and Invalid Generic Names in Zoology, name no. 1158, Opinion 517, 1958. Synonym of *Enoplognatha.*

Physcoa Thorell, 1895, Descriptive Catalogue of the Spiders of Burma, p. 82. Type species by original designation and monotypy: *P. scintillans* Thorell, 1895, *op. cit.*, p. 83, ♀, from Burma (BMNH, examined). Synonym of *Chrysso.*

Plocamis Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 521. Type species by original designation and monotypy: *Episinus theridioides* Simon, 1873, Mém. Soc. Roy. Sci. Liége, ser. 2, vol. 5, p. 125, ♀, from Corsica (MNHN, examined). Synonym of *Episinus.*

Propostira Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 510. Type species by original designation and monotypy: *P. quadrangulata* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 132, ♀, from India (MNHN, examined). Probably a synonym of *Theridion.*

Rhomphaea L. Koch, 1872, Die Arachniden Australiens, p. 289. Type species by monotypy: *R. cometes* L. Koch, 1872, *op. cit.*, p. 290, pl. 24, fig. 3, ♀, from Samoa. Type species probably very close to *Argyrodes fictilium* (Hentz) from North America. Synonym of *Argyrodes.*

ROBERTUS O.P.-Cambridge, 1879, Spiders of Dorset, p. 103. Type species by monotypy: *R. astutus* O.P.-Cambridge, 1879, *ibid.*, ♀, from Europe (HDE) [= *R. neglectus* O.P.-Cambridge]. Synonyms: *Ctenium, Pedanostethus, Garritus.* Usage strongly favors *Robertus* although *Ctenium* is an older available synonym.

Rugatha Chamberlin and Ivie, 1942, Bull. Univ. Utah, biol. ser., vol. 7, no. 1, p. 42. Type species by original designation: *Enoplognatha (Rugatha) pikes* Chamberlin and Ivie, *ibid.*, ♀ ♂, from Colorado (in the University of Utah Collection, Salt Lake City) [= *E. intrepida* Sørensen]. Synonym of *Enoplognatha.*

Rugathodes Archer, 1950, Paper Alabama Mus. Nat. Hist., no. 30, p. 24. Type species by original designation: *Theridium sexpunctatum* Emerton, 1882, Trans. Connecticut Acad. Sci., vol. 6, p. 12, pl. 2, fig. 5, ♀ ♂, from North America (MCZ, examined). Synonym of *Theridion.*

Sclerogaster Cavanna, 1876, Bull. Soc. Ent. Italiana, vol. 8, p. 89. Type species by monotypy: *S. pusillus* Cavanna, 1876, *ibid.*, p. 90, pl. 2, figs. 3-11, ♀ ♂, from Mediterranean countries [= *Phoroncidia paradoxa* (Lucas)]. Synonym of *Phoroncidia.*

[*Sedasta* Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 531. Type species by original designation and monotypy: *S. ferox* Simon, 1894, *ibid.*, juv., from Sierra Leone (MNHN, examined). Does not belong to Theridiidae.]

Spelobion Chamberlin and Ivie, 1938, Publ. Carnegie Inst. Washington, no. 491, p. 133. Type species by original designation and monotypy: *S. spukilum* Chamberlin and Ivie, 1938, *ibid.*, ♀, from Yucatan (AMNH) [Probably = *Thymoites luculentus* (Simon)]. Synonym of *Thymoites.*

[*Spheropistha* Yaginuma, 1957, Acta Arachnologica, vol. 15, no. 1, p. 14. Type species by original designation and monotypy: *S. melanosoma* Yaginuma, 1957, *op. cit.*, p. 15, fig. 2, ♀, from Japan (examined). Transferred to Theridiosomatidae.]

Sphyrotinus Simon, 1894, Proc. Zool. Soc. London, p. 524. Type species by monotypy: *S. luculentus* Simon, 1894, *ibid.*, ♀ ♂, from St. Vincent Island, Lesser Antilles (BMNH, examined). Synonym of *Thymoites.*

SPINTHARUS Hentz, 1850, Jour. Boston Soc. Nat. Hist., vol. 6, p. 283. Type species by monotypy: *S. flavidus* Hentz, 1850, *op. cit.*, p. 284, pl. 10, fig. 8, ♀, from Alabama.

Stearodea F.P.-Cambridge, 1902, Ann. Mag. Nat. Hist., ser. 7, vol. 9, p. 13. Type species by original designation: *Aranea bipunctata* Linnaeus, 1758, Systema Naturae, ed. 10, vol. 1, p. 620. Synonym of *Steatoda.*

Steassa Simon, 1910, Denkschr. Med. Nat. Gesell. Jena, vol. 16, p. 192. Type species by monotypy: *S. marmorata* Simon, 1910, *ibid.*, ♀, from South Africa (MNHN, examined). Synonym of *Steatoda.*

STEATODA Sundevall, 1833, Conspectus Arachnidum, p. 16. Although *Aranea bipunctata* (Linnaeus) is generally listed as the type species, the first designation seems to be by Thorell, 1869, Nova Acta Reg. Soc. Sci., Uppsala, ser. 3, vol. 7, p. 93: *S. castanea* (Clerck, 1757), Svenska Spindlar, p. 49, from Europe. Synonyms: *Asagena, Eucharia, Lithyphantes, Teutana, Stethopoma, Ancocoelus, Stearodea, ?Mocro, Steassa, Argyroelus, Asagenella.*

Stegosoma O.P.-Cambridge, 1873, Proc. Zool. Soc. London, p. 126. Type species designated by Bonnet, 1958, Bibliographia Araneorum, vol. 2, p. 4149: *S. testudo* O.P.-Cambridge, 1873, *ibid.*, pl. 14, fig. 10, ♀, from Ceylon. Homonym of *Stegosoma* Loew, 1863. Synonym of *Phoroncidia.*

STEMMOPS O.P.-Cambridge, 1894 (January), Biologia Centrali-Americana, Araneidea, vol. 1, p. 125. Type species by monotypy: *S. bicolor* O.P.-Cambridge, 1894, *ibid.*, pl. 17, fig. 5, ♂, from Mexico (BMNH). Synonyms: *Ataulfo* (OS), *Mettus.*

Stethopoma Thorell, 1890, Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. 8, p. 288. Type species by original designation and monotypy: *S. cingulatum* Thorell, 1890, *op. cit.*, p. 289, ♀ ♂, from Sumatra (MCSN, examined). Synonym of *Steatoda.*

Stictoxena Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 529. Type species by original designation and monotypy: *S. sertata* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 138, ♂, from Ceylon (MNHN, examined). Synonym of *Dipoena.*

STYPOSIS Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 592. Type species by original designation and monotypy: *S. flavescens* Simon, 1894, *ibid.*, ♀, from Venezuela (MNHN, examined). Synonym: ? *Iardinis.*

Sudabe Karsch, 1879, Verhandl. Naturhist. Ver. Preuss. Rhineland Westfalen, vol. 36, p. 103. Type species by original designation and monotypy: *S. pilula* Karsch, 1879, *ibid.*, ♀, from Japan. Type specimens lost. Specimens from Japan were examined. Synonym of *Phoroncidia.*

Sunitorypha Komatsu, 1960, Acta Arachnologica, vol. 17, p. 9. Type species by original designation and monotypy: *S. linyphoides* Komatsu, 1960, *ibid.*, vol. 17, p. 9, fig., ♀ ♂, from Japan [= *Nesticus floronoides* (Komatsu)]. Synonym of *Nesticus,* family Nesticidae.

Symopagia Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 559. Type species by original designation and monotypy: *S. oreophila* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 146, ♀, from Ceylon (MNHN, examined). Synonym of *Enoplognatha.*

[*Synaphris* Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 589. Type species by original designation: *Grammonota letourneuxi* Simon, 1884, Les Arachnides de France, vol. 5, p. 599, ♂, from Egypt (MNHN, examined). Transferred to Symphytognathidae.]

SYNOTAXUS Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 495. Type species by original designation and monotypy: *S. turbinatus* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 131, ♂, from Brazil (MNHN, examined).

[*Tamasesia* Marples, 1955, Jour. Linn. Soc. London, Zool., vol. 42, p. 476. Type species by original designation: *T. rotunda* Marples, 1955, *ibid.*, pl. 57, figs. 14, 18, 20, 23, ♀ ♂, from Samoa (OM). Synonym of *Mysmena;* transferred to Symphytognathidae.]

[*Taphiassa* Simon, 1880, Ann. Soc. Ent. Belgique, vol. 23, C.R., p. clxxii. Type species by monotypy: *T. impressa* Simon, 1880, *ibid.*, ♀, from New Caledonia (MNHN, examined). Transferred to Symphytognathidae.]

[*Tekella* Urquhart, 1894, Trans. New Zealand Inst., vol. 26, p. 211. Type species by monotypy: *T. absidata* Urquhart, 1839, *ibid.*, ♂, from New Zealand (Canterbury Museum, Christchurch, examined). Transferred to Theridiosomatidae (might be Argiopidae).

TEKELLINA Levi, 1957, Trans. Amer. Micros. Soc., vol. 76, p. 107. Type species by original designation and monotypy: *T. archboldi* Levi, 1957, *ibid.*, figs. 7-12, ♀ ♂, from Florida (AMNH, examined).

Teutana Simon, 1881, Les Arachnides de France, vol. 5, p. 161. New name for *Eucharia* C. Koch, preoccupied. Synonym of *Steatoda.*

THEONOE Simon, 1881, Les Arachnides de France, vol. 5, p. 130. Type species designated by Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 589: *Theonoe filiola* Simon, 1881, *op. cit.*, vol. 5, p. 131 ♀ ♂ [= *Theonoe minutissima* (O.P.-Cambridge)]. Homonym of *Theonoe* Philippi, 1865, a name for an hemipteran nymph. *Theonoe* Philippi has never been used. Synonyms: *Coressa*, *Onesinda* and *Theridiellum.*

Theridiella Tullgren, 1910, *in* Sjoestedt, Ergeb. Schwedischen Exped. Kilimandjaro, vol. 3, p. 136. Type species by monotypy: *T. monticola* Tullgren, 1910, *ibid.*, pl. 2, fig. 53, ♂, from Kilimanjaro, East Africa (NRS, examined). Synonym of *Coscinida.*

Theridiellum Dahl, 1912, Beitr. Naturdenkmalpflege, vol. 3, p. 598. Type species by monotypy: *T. minutissimum* Dahl, 1912, *ibid.*, ♀ ♂, from Europe (Berlin Museum) [= *Theonoe minutissima* (O.P.-Cambridge)]. Synonym of *Theonoe.*

[*Theridilella* Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., vol. 3, no. 5, p. 33. Type species by original designation and monotypy: *T. zygops* Chamberlin and Ivie, 1936, *ibid.*, juv., from Panama (University of Utah Collection, examined). Synonym of *Theridiosoma,* transferred to Theridiosomatidae.]

THERIDION Walckenaer, 1805, Tableau des Aranéides, p. 72. Type species designated by Int. Comm. Zool. Nomencl., Opinion 517, 1958: *Aranea picta* Walckenaer, 1802, Fauna Paris., vol. 2, p. 207, from Europe. *Theridion* is listed in the Official List of Generic Names in Zoology, name no. 1272. The subsequent invalid emendation: *Theridium* Leach, 1824, and *Theridio* Simon, 1864, are listed in the Official Index of Rejected and Invalid Generic Names in Zoology, names no. 1159, 1160, Opinion 517, 1958. Synonyms: *Neottiura, Tobesoa, ?Propostira, Phaetoticus, Wamba, Allodipoena, Allotheridion, Chindellum, Phylloncta, Nesticodes, Rugathodes,* and *Paidiscura.*

Theridiotis Levi, 1954, Trans. Amer. Micros. Soc., vol. 73, p. 178. Type species by original designation: *Dipoena jocosa* Gertsch and Davis, 1936, Amer. Mus. Novitates, no. 881, p. 7, fig. 20, ♀ ♂, from Texas (AMNH, examined). Synonym of *Chrosiothes.*

THERIDULA Emerton, 1882, Trans. Connecticut Acad. Sci., vol. 6, p. 25. Type species designated by Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 551: *Theridion opulenta* Walckenaer. Emerton does not list *T. opulenta* and Simon apparently considered it a senior synonym of *T. sphaerula* (Hentz), which Emerton mentions. However, Emerton misidentified *T. sphaerula;* his specimens were *Theridula emertoni* Levi. *Theridion opulenta* (= *T. sphaerula*) is found in the southern United States. Synonym: *Mesopneustes.*

Tholocco Archer, "1946" [1947], Paper Alabama Mus. Nat. Hist., no. 22, p. 49. Type species by original designation: *Theridion amputatum* Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 90, pl. 4, fig. 58, from Florida [= *Thymoites unimaculatus* (Emerton)]. Synonym of *Thymoites.*

Thonastica Simon, 1908, Bull. Sci. France, Belgique, vol. 42, p. 92. Type species by monotypy: *T. praemollis* Simon, 1909, *ibid.*, ♀, from Tonkin (MNHN, examined). Synonym of *Thymoites.*

THWAITESIA O.P.-Cambridge, 1881, Proc. Zool. Soc. London, p. 766. Type species by monotypy: *T. margaritifera* O.P.-Cambridge, 1881, *op. cit.*,

p. 767, pl. 66, fig. 1, ♀ ♂, from Ceylon (HDE, examined). Synonyms: *Hildbolda*, *Topo*.

Thymoella Bryant, 1948, Bull. Mus. Comp. Zool., vol. 100, p. 377. Type species by original designation and monotypy: *T. banksi* Bryant, 1948, *op. cit.*, p. 378, figs. 58, 59, 62, 64, 65, 66, ♂ (MCZ, examined). Synonym of *Thymoites*.

THYMOITES Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 161. Type species by monotypy: *T. crassipes* Keyserling, 1884, *op. cit.*, p. 162, ♂, from Peru (PAS, examined). Synonyms: *Sphyrotinus*, *Hypobares*, *Philto*, *Hubba*, *Thonastica*, *Garricola*, *Paidisca*, *Brontosauriella*, *Spelobion*, *Tholocco*, *Thymoella*.

TIDARREN Chamberlin and Ivie, 1934, Bull. Univ. Utah, biol. ser., vol. 2, no. 4, p. 4. Type species by original designation: the nominal species *Theridion fordum* Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, pt. 1, p. 23, tab. 1, fig. 9, from South America. [However, the specimens Chamberlin and Ivie considered *fordum* Keyserling were misidentified; they were *T. sisyphoides* (Walckenaer).]

Tobesoa Keyserling, 1890, *in* L. Koch, Die Arachniden Australiens, pt. 2, p. 239. Type species by monotypy: *T. theridioides* Keyserling, 1890, *op. cit.*, p. 240, pl. 21, fig. 6, ♀ ♂, from Australia. Synonym of *Theridion*.

TOMOXENA Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 518. Type species by original designation: *T. dives* Simon, 1895, Ann. Soc. Ent. France, vol. 64, p. 132, ♀, from India (MNHN, examined).

Topo Exline, 1950, Studies Honoring Trevor Kincaid, Univ. Washington Press, p. 113. Type species by original designation and monotypy: *T. bracteatus* Exline, 1950, *op. cit.*, p. 114, pl. 1, figs. 1, 6, pl. 2, fig. 15, ♀, from Ecuador (MCZ, examined). Synonym of *Thwaitesia*.

Tricantha Simon, 1864, Histoire Naturelle des Araignées, first edit., p. 293. Type species by monotypy: *T. tricornis* Simon, 1864, *op. cit.*, p. 293, ♀, from Brazil (MNHN, examined) [= *Trithena tricuspidata* (Blackwall)]. Synonym of *Phoroncidia*. [Thorell and others have changed the spelling of Simon's generic name to *Triacantha*.]

Trigonobothrys Simon, "1888" [1889], Ann. Soc. Ent. France, ser. 6, vol. 8, p. 230. Type species by monotypy: *T. excisus* Simon, 1888, *op. cit.*, p. 231, ♀, from Madagascar (MNHN, examined). Synonym of *Dipoena*.

Trithena Simon, 1867, Rev. Zool., p. 22. Type species by monotypy: *T. inuncans* Simon, 1867, *op. cit.*, p. 23, from Brazil (MNHN, examined) [= *T. tricuspidata* (Blackwall)]. Synonym of *Phoroncidia*.

[*Troglonata* Simon, 1922, Bull. Soc. Ent. France, p. 200. Type species by monotypy: *T. granulum* Simon, 1922, *ibid.*, ♀ ♂, from France (MNHN, examined). Transferred to Symphytognathidae.]

Ulesanis L. Koch, 1872, Die Arachniden Australiens, p. 242. Type species designated by Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 560: *U. chelys* L. Koch, 1872, *op. cit.*, p. 244, pl. 20, fig. 4, ♀, from Samoa [= *U. personata* L. Koch]. Synonym of *Phoroncidia*.

Umfila Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, pt. 2, p. 256. Type species by monotypy: *U. granulata* Keyserling, 1886, *op. cit.*, p. 257, from Brazil (types not in BMNH, probably lost, however, a ♂ in the MNHN, examined). Synonym of *Dipoena.*

[*Vibradellus* Chamberlin, 1925, Bull. Mus. Comp. Zool., vol. 67, p. 214. Type species by original designation and monotypy: *V. carolinus* Chamberlin, 1925, *ibid.*, p. 114, ♂ from the southern United States (MCZ, examined) [= *Gasteracantha cancriformis* (Linnaeus)]. Family Argiopidae.]

Wamba O.P.-Cambridge, 1896, Biologia Centrali-Americana, Araneidea, vol. 1, p. 190. Type species by monotypy: *W. congener* O.P.-Cambridge, 1896, *ibid.*, pl. 24, figs. 1a-f, ♂, from Guatemala (BMNH) [= *Theridion atropunctatum* Petrunkevitch]. Synonym of *Theridion.*

Wibrada Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, pt. 2, p. 22. Type species by monotypy: *W. longiceps* Keyserling, 1886, *ibid.*, ♂, from Peru (MNHN, examined). Probably synonym of *Phoroncidia.*

WIRADA Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, pt. 2, p. 25. Type species by monotypy: *W. punctata* Keyserling, 1886, *op. cit.*, p. 26, ♂, from Peru (PAS, examined).

[*Zangherella* Caporiacco, 1949, Redia, Firenze, vol. 34, p. 259. Type species by monotypy: *Z. minima* Caporiacco, 1949, *op. cit.*, p. 260, fig. 4, ♂, from Castelraniero, Romagna, Italy (types lost, paratypes in the personal collection of Prof. P. Zangheri, examined). Transferred to Symphytognathidae.]

Key to Genera

In order to key species of theridiids to genus, specimens of both sexes are necessary. No characters are known that separate the females of *Coleosoma, Theridion,* and *Theridula,* for instance. On the other hand, the genera *Dipoena, Euryopis* and *Audifia* are easiest to separate from other genera by the number of seminal receptacles in the female (four subspherical in the mentioned genera, two in all other theridiid genera).

While new genera should not be described unless both sexes are known, many species will probably be described from only one sex. The only recommendation we can make is that these species temporarily be placed in the nearest genus, possibly the large genera, *Theridion, Anelosimus* or *Steatoda.*

It should be kept in mind that some genera, such as *Dipoena-Euryopis* and *Theridion-Thymoites, Styposis-Pholcomma, Steatoda-Enoplognatha,* intergrade, and the position of some species may be arbitrary, although the majority of species belonging to these genera can easily be placed. For this reason it has been necessary to use the unsatisfactory words ''often'' and ''usually'' in the key to differentiate these genera.

In this key, genera recognizable by non-genitalic characters (easy to observe) are separated first; genera that can be diagnosed only by genitalic characters, last. While this key includes all known theridiid genera, it should be possible to construct a much simpler key, using only non-genitalic characters, for the genera occurring in a limited region.

1a. Colulus always present, at least half as long as its setae (Figs. 3, 4) ....Key C, p. 37
1b. Colulus absent (Fig. 1) or if present, then shorter than one-quarter length of its setae (Fig. 2) 2
2a. Colulus absent (Fig. 1) ....Key A, p. 33
2b. Colulus present, or colulus replaced by two setae (Fig. 2) ....Key B, p. 35

Key A (theridiids without colulus)

1a. Carapace, sternum with scattered tubercles (Fig. 250); sclerotized ring around spinnerets hiding colulus setae ....*Wirada*
1b. Carapace, sternum without tubercles 2
2a. Eye region of carapace projecting above clypeus (Figs. 238, 244); abdomen heavily sclerotized, usually with folds or spines (Figs. 235, 244, 247); sclerotized ring around spinnerets hiding the two colulus setae ....*Phoroncidia*
2b. Eye region of carapace not projecting, or if projecting, abdomen not heavily sclerotized with folds or spines 3
3a. Carapace bulging anteriorly (Fig. 178); abdomen with posterior tubercles (Figs. 178, 183); palpus with an extra sclerite (Figs. 181, 182); Ceylon ....*Cephalobares*
3b. Carapace and abdomen not as above; palpus without extra sclerite ..4
4a. Abdomen higher than long with 3 large spines and a sclerotized ring around spinnerets (Fig. 134) [♂ unknown]; Ceylon to Singapore .. ..*Molione*
4b. Abdomen otherwise 5
5a. Cephalothorax with a short posterior stalk (Fig. 174), abdomen oval in outline; male embolus and female connecting ducts short (Figs. 172, 175, 176); Brazil ....*Hetschkia*
5b. Cephalothorax otherwise; or if similar, abdomen extended beyond spinnerets, embolus and connecting ducts long, male conductor S-shaped 6
6a. Cephalothorax modified, flat oval or with posterior stalk (Figs. 160, 163, 167); abdomen extended beyond spinnerets and a sclerotized ring around pedicel (Fig. 168); male embolus and female connecting ducts very long and threadlike (Figs. 161, 165, 166); tropical America .. ..*Helvibis*
6b. Cephalothorax and abdomen otherwise 7
7a. Femur I of male with thorn below (Fig. 86); carapace low and long, abdomen much longer than wide (Figs. 85, 86); Samoa ..*Cyllognatha*

7b. Femur I of male without thorn on venter; carapace, abdomen otherwise 8

8a. Six eyes; or, with eight eyes but anterior medians with maximum diameter equal to radius of posterior medians (Fig. 231), and palpal bulb twisted with embolus facing outside (ectal) (Figs. 232, 233); Americas .... *Styposis*

8b. Eight eyes; if anterior medians small, palpal bulb not facing ectal side 9

9a. Eyes of posterior row their diameter apart or less, eye region black (Figs. 144, 145), carapace low, male embolus with broad basal portion and a threadlike tube, radix present (Figs. 141, 148, 149), abdomen suboval, 1½ times longer than wide or high .... *Coscinida*

9b. Posterior eyes their diameter or more apart; or, if eyes close together and large, eye region rarely black, and palpus or abdomen otherwise 10

10a. Females with four seminal receptacles (Figs. 34, 36) (except *Euryopis nana*, *E. argentea* and *E. saukea*), abdomen subtriangular (Figs. 29-31); palpus with duct looping through length of median apophysis, which is broadly attached to tegulum, radix absent (Figs. 32, 35) .... *Euryopis*

10b. Females with two seminal receptacles, abdomen sometimes subtriangular, palpus with duct not looping through length of median apophysis when broadly attached to tegulum; radix present or absent 11

11a. Abdomen subtriangular, widest at anterior (Fig. 171) [♂ unknown]; India .... *Tomoxena*

11b. Abdomen otherwise 12

12a. Carapace, sternum heavily sclerotized, abdomen with dorsal, posterior humps and characteristic spotted pattern (Figs. 155, 156, 159) .... *Dipoenura*

12b. Carapace, sternum rarely heavily sclerotized; if sclerotized, abdomen otherwise 13

13a. Abdomen not sclerotized in either sex, with a single posterior, dorsal tip overhanging spinnerets, usually longer than high, often with grooves on sides (Figs. 108-111), male always with radix and separate median apophysis .... *Chrysso*

13b. Abdomen otherwise; or, if with posterior dorsal tip overhanging spinnerets, male with anterior sclerotized ring on abdomen (*Coleosoma*); or lacking radix and having median apophysis broadly attached to tegulum or embolus (*Achaearanea*) 14

14a. One tooth on the posterior margin of chelicerae, palpus very simple without conductor, median apophysis, radix (Figs. 67, 68), abdomen suboval; America .... *Paratheridula*

14b. Posterior margin without teeth, or if with a tooth, abdomen with a posterior dorsal extension (*Coleosoma*) 15

15a. Abdomen of male with a sclerotized ring around pedicel covering anterior half of venter, and abdomen sometimes constricted in middle (Figs. 105, 106), male embolus with a broad basal portion and a long tube (Figs. 103, 104, 107) . . . . *Coleosoma*

15b. Abdomen of male without sclerotized ring, or if with sclerotized ring venter not covered, and abdomen not constricted 16

16a. Male with only one very large palpus (Fig. 87); female abdomen higher than long, with a white line from dorsal tip to anal tubercle (Fig. 89); epigynum with a pair of openings, one on each side of a cone-shaped knob; male less than ¼ length of female . . . . . . *Tidarren*

16b. Male always with two palpi; female abdomen, if higher than long and with white line, then epigynum not a cone-shaped knob; male ½ length or more than female 17

17a. Male palpus with a coiled duct in tegulum; cymbium with a serrated tip (Fig. 72); seemingly without radix, median apophysis or conductor; abdomen oval; less than 2 mm total length; South Africa . . . . *Histagonia*

17b. Palpus rarely with coiled duct; if with coiled duct, cymbium without serrated tip and with conductor 18

18a. Palpus without conductor; no median apophysis; tegulum attached to cymbium on both ends (Figs. 70, 71); female abdomen wider than long (Fig. 69) . . . . *Theridula*

18b. Palpus with conductor; median apophysis a separate sclerite or a lobe of the tegulum; tegulum always attached to cymbium at proximal end only; female abdomen sometimes wider than long 19

19a. Median apophysis broadly attached to tegulum or to embolus, never a separate sclerite (Figs. 74, 76, 78); abdomen usually higher than long, often with dark patches on sides (Figs. 79, 80), sometimes with a posterior dorsal tubercle (Fig. 81); palpus without radix . . . . *Achaearanea*

19b. Median apophysis always a separate sclerite; abdomen usually longer than high or suboval, never with a tubercle, palpus almost always with radix (Figs. 94, 95, 125) 20

20a. Less than 2.5 mm in total length, uniformly colored (except for discrete black spots or gray marks), first patella and tibia usually less than one and one-half times length of carapace. Eye region of males often with grotesque projection, elevated, sometimes clypeus with a transverse groove (Figs. 121-124, 132), abdomen sometimes heavily sclerotized . . . . *Thymoites*

20b. Usually larger spiders, usually with pattern or band on abdomen containing white and black pigment, first patella and tibia usually longer; male carapace never grotesquely modified, abdomen never sclerotized (except for narrow sclerotized ring around pedicel in males of some species) . . . . *Theridion*

Key B (theridiids with colulus shorter than one-quarter length of its setae or colulus replaced by two setae)

1a. Carapace, sternum with scattered tubercles (Fig. 250); South America . . . . *Wirada*

1b. Carapace, sternum without tubercles 2

2a. Eye region of carapace projecting above clypeus (Figs. 235,244); abdomen heavily sclerotized, often folded or with spines (Figs. 235, 244, 247); female with two seminal receptacles; paracymbium usually a hook on margin of cymbium of male palpus (Fig. 245) *Phoroncidia*

2b. Eye region not projecting (or if projecting, then four seminal receptacles and paracymbial hook on back of cymbium); abdomen not heavily sclerotized (or if sclerotized, oval in outline) 3

3a. Abdomen of both sexes extended, longer behind spinnerets than in front or worm-shaped (Fig. 304) .... *Argyrodes*

3b. Abdomen barely overhanging spinnerets behind (Figs. 190, 201, 207) 4

4a. Cephalothorax stalked, stalk as long as ½ width of carapace (Fig. 189), and abdomen higher than long (Fig. 190); tropical America .. .. *Cerocida*

4b. Cephalothorax without stalk, or if present stalk less than ¼ width of carapace and abdomen not higher than long 5

5a. Two pairs of round or oval seminal receptacles in female (Figs. 48, 58); male carapace often with dorsal grooves (Figs. 45-47); male palpus wth duct usually looping through median apophysis (Figs. 49-51); embolus, if long, pointing counterclockwise in left palpus (Fig. 57) 6

5b. One pair of round or oval seminal receptacles (sometimes thin-walled asymmetrical pockets present); male carapace never with dorsal grooves; male with duct rarely looping through length of median apophysis (*Spintharus*); embolus generally pointing clockwise in left palpus (Figs. 205, 215, 245, 248) 9

6a. Carapace elongated, widest in posterior portion (Fig. 63); abdomen with sclerotized rings around spinnerets and pedicel (Fig. 64); legs long [♂ unknown]; South America, Africa .... *Audifia*

6b. Carapace not elongated, abdomen rarely with sclerotized rings; legs of medium length (first patella and tibia less than one and one-half times carapace length) 7

7a. Teeth on anterior margin of chelicerae, minute denticles on posterior margin; palpus with paracymbial hook on cymbium margin (Fig. 234) .... *Pholcomma*

7b. Chelicerae without teeth; paracymbial hook not on cymbial margin 8

8a. Palpus without radix; median apophysis broadly attached to tegulum (Figs. 32, 35); abdomen subtriangular (Figs. 29, 30, 31); male carapace rarely different in shape from that of female .... *Euryopis*

8b. Palpus with radix (Figs. 49, 50); or if not, median apophysis a separate sclerite (Fig. 51); abdomen usually subspherical, wider than long or with humps, rarely subtriangular (Figs. 40-43); carapace of male often high, cylindrical, with grooves on dorsum (Figs. 45-47) .... *Dipoena*

9a. Six eyes; or if eight eyes, then maximum diameter of anterior medians equal to radius of posterior medians (Fig. 231) and palpal bulb twisted with embolus facing lateral (Figs. 232, 233) ..... *Styposis*

9b. Eight eyes; maximum diameter of anterior medians more than radius of posteriors; or if maximum diameter of anterior medians equal to radius of posteriors, palpal embolus facing venter 10

10a. Posterior median eyes farther from each other than from laterals or equally spaced, and not more than one-third their diameter from laterals (but usually touching) and carapace black in eye region (Fig. 188) . . . . *Stemmops*

10b. Posterior eyes otherwise, or if similar, eye region of carapace not black 11

11a. Chelicerae without denticles or teeth on posterior margin; abdomen usually with humps, subtriangular or wider than long 12

11b. Chelicerae with denticles or teeth on posterior margin (Figs. 18, 19); abdomen usually ovoid 16

12a. Chelicerae without teeth, abdomen wider than long, palpus circular in outline (Figs. 196, 197); Americas . . . . *Tekellina*

12b. Chelicerae with one or two teeth on anterior margin, palpus not circular in outline 13

13a. Embolus long, with tip supported by cymbium; conductor absent or minute (Figs. 199, 200); epigynum an indistinct depression with connecting ducts coiled on each side and seminal receptacles anterior (Fig. 198); abdomen black or dark on venter above pedicel (Figs. 201, 202); tropical America . . . . *Chrosiothes*

13b. Embolus never supported by cymbium; conductor very large; epigynum otherwise; abdomen colored otherwise 14

14a. Abdomen widest at middle or posterior to middle (Figs. 220, 221, 228), never higher than wide; without silvery plates; lateral eyes often separated; eyes often on tubercles; usually tubercles or horns between anterior and posterior median eyes (Fig. 221) . . . . *Episinus*

14b. Abdomen widest anterior to middle, or higher than wide sometimes with silvery plates (Figs. 203, 207); lateral eyes touching; eyes never on tubercles; no tubercles between eyes 15

15a. Posterior median eyes about their diameter or less apart (Fig. 211); abdomen covered by silvery plates (Figs. 207, 212) . . . . . . *Thwaitesia*

15b. Posterior median eyes two to three diameters apart (Fig. 203); abdomen not covered by silvery plates (Figs. 203, 204) . . . . *Spintharus*

16a. Abdomen of male (sometimes female) heavily sclerotized; abdomen uniformly colored or with some indistinct dark patches; paracymbial hook on cymbium margin (Fig. 234), less than 1.8 mm total length . . . . *Pholcomma*

16b. Abdomen not sclerotized, often with a longitudinal, dorsal dark band (Fig. 184); paracymbial hook usually in alveolus of cymbium; more than 1.4 mm total length . . . . *Anelosimus*

Key C (colulus always present, at least half as long as its setae)

1a. Comb on fourth tarsus absent (except in Nesticidae); paracymbium a separate sclerite (Linyphiidae) or a hook on proximal part of cymbium (Nesticidae, Argiopidae, Tetragnathidae, Theridiosomatidae); or spider minute in size, tarsi longer than metatarsi, palpi relatively simple without paracymbium (Symphytognathidae). Cheliceral anterior and posterior margins with more than 3 subequal teeth (fewer in Nesticidae) and shape of chelicerae as in Figures 23-28; distal margin of labium swollen, rebordered .... *other related families*

1b. Comb on fourth tarsus usually present (except *Argyrodes*); paracymbium, if present, in alveolus of cymbium (Figs. 252, 302), or on margin of cymbium (Figs. 280, 291, 293) never proximal; metatarsi generally longer than tarsi (except *Comaroma, Theonoe*); chelicerae generally with 3 or fewer teeth on anterior margin, fewer than 3 teeth (longer than wide) on posterior margin unless they are minute denticles (as wide as long); shape of chelicerae as in Figures 9-22; distal margin of labium not swollen (rebordered) 2

2a. Chelicerae without teeth (Figs. 14, 15); lateral eyes always separated; embolus and connecting ducts of female coiled (Fig. 253); seminal receptacles dumbbell-shaped (Fig. 254) .... *Latrodectus*

2b. Chelicerae with one or more teeth or denticles; lateral eyes sometimes separated; embolus, connecting ducts rarely coiled; seminal receptacles not dumbbell-shaped 3

3a. With 6 eyes; or if 8 eyes, then diameter of anterior medians minute (less than radius of laterals); abdomen with sclerotized spots or scuta; [small spiders, less than 2 mm in total length] .... *Comaroma*

3b. With 8 eyes, diameter of medians larger than radius of laterals 4

4a. With denticles or teeth on posterior margin of chelicerae 5

4b. Posterior margin of chelicerae lacking teeth or denticles 8

5a. Abdomen of both sexes usually modified with humps, or narrowly elongate to worm-shaped, or higher than long (Figs. 303-305); eye region of male usually with projections, male clypeus usually with projections, grooves or bulging (Figs. 299, 301) .... *Argyrodes*

5b. Abdomen broadly rounded; male clypeus and eye region not modified as above 6

6a. Posterior margin on chelicerae with two denticles; palpal cymbium elongate, usually twice as wide proximally as distally (Figs. 290, 291); abdomen without marking .... *Robertus*

6b. Posterior margin with one tooth in female, one in male, or male chelicerae enlarged with several teeth on posterior margin; palpal cymbium oval; abdomen white, spotted, or with a pattern 7

7a. Median apophysis large, paracymbium on cymbium margin (Fig. 282); chelicerae of male enlarged (Fig. 281), sclerotized; usually dark in color, abdomen with a dorsal pattern .... *Enoplognatha*

7b. Median apophysis minute, paracymbium not hook-shaped (Figs. 286, 289), chelicerae of male not enlarged; white in color, soft, very lightly sclerotized; New Zealand .... *Icona*

8a. Sclerotized ring or plates on female abdomen around pedicel; cymbium with a spur (Figs. 273, 274) or male clypeus with a hook (Fig. 278) 9

8b. No sclerotized ring on female abdomen; cymbium without spur, male clypeus without a hook 10

9a. Clypeus of male bearing a fleshy hook (Fig. 278), cymbium without spur; tropical America . . . . *Craspedisia*

9b. Clypeus of male without such a hook, cymbium with a spur (Figs. 273, 274); Europe, North America . . . . *Crustulina*

10a. Abdomen of both sexes higher than long, or with tubercles, or narrowly elongate to worm-shaped extending beyond spinnerets 11

10b. Abdomen suboval in outline, longer than wide or high 12

11a. Male palpal patella without a spur; male clypeus and eye region usually modified with projections or grooves (Figs. 299, 301) . . . . *Argyrodes*

11b. Male palpal patella with a spur (Fig. 298); male clypeus and eye region not so modified . . . . *Synotaxus*

12a. Tarsi longer than metatarsi; radix absent, median apophysis fused to embolus (Fig. 252); less than 1.5 mm total length; abdomen unicolor; Europe, North America . . . . *Theonoe*

12b. Metatarsi longer than tarsi; radix present, median apophysis a separate sclerite; usually more than 2 mm total length; abdomen often purplish black with a white line around anterior, and other marking 13

13a. Male palpal tibia with a large hook (Fig. 333); Australia . . . . *Nicodamus* (Zodariidae)

13b. Male palpal tibia without a large hook . . . . *Steatoda*

Descriptions and Diagnoses of Theridiid Genera

A. Theridiids with two pairs of seminal receptacles in female.

Euryopis Menge

Figures 9, 10, 29-39

Carapace variable in shape, sometimes head region high. Posterior median eyes their diameter or more apart. Chelicerae very small, lacking teeth; fang long and flattened (Figs. 9, 10). Leg IV usually slightly longer than I; leg III may be longer than II; patella and tibia IV, 1 to 1.7 times length of carapace. Abdomen usually triangular, pointed behind (Figs. 29-31), sometimes sclerotized with scuta in males (Fig. 33), often with silver spots or marks on dorsum. Colulus absent or replaced by two small setae.

Four seminal receptacles in female (Figs. 34, 36, 37) [Except in *E. argentea* Emerton, *E. saukea* Levi and *E. nana* (O.P.-Cambridge) whose males have a *Euryopis* palpus]. Palpus without radix; median apophysis broadly attached to tegulum (sometimes with a seam) and with duct looping through it (Figs. 32, 35).

Separated from most genera by presence of four seminal receptacles (with some exceptions); from *Dipoena* by lack of radix, the attachment of the median apophysis to the tegulum, the triangular abdomen (only rarely triangular in *Dipoena*), and often by lacking the setae that replace the colulus. The two genera probably intergrade. Males are distinct from *Stemmops* and *Coscinida* in not having the left embolus long and pointing clockwise, and in having the duct loop through the median apophysis. The species having the simplest palpus may be related to the genus *Achaearanea*. Three species [*E. argentea* Emerton, *E. nana* (O.P.-Cambridge), and *E. saukea* Levi] have only one pair of seminal receptacles. Other similarities to *Achaearanea* are that the cymbium extends beyond the alveolus and that the median apophysis is a lobe of the tegulum. *Achaearanea* differs, however, in that the duct does not go through the median apophysis.

Cosmopolitan, probably all ant feeders.

Both *Atkinsonia nana* O.P.-Cambridge (Figs. 38, 39) and *Acanthomysmena spinifera* Mello-Leitão are closely allied to *E. spinigera* O.P.-Cambridge. No characters are known that separate *Diaprocorus multipunctatus* Simon (Fig. 37) and *Phycosoma oecobioides* O.P.-Cambridge from *Euryopis*. *Phylarchus brevis* (O.P.-Cambridge), described from a juvenile, is closely allied to *E. taczanowskii* Keyserling [=*Euryopis nigripes* Banks] (Fig. 29) or may be the same.

DIPOENA Thorell

Figures 11, 12, 40-62

Male carapace often very high, sometimes as high as long, cylindrical with dorsal grooves or depressions (Figs. 45-47), or in some species low, like that of female (Fig. 44). Carapace of female only rarely modified by being high. Eye region often slightly projecting above clypeus. Anterior median eyes sometimes larger than others; however, this is not a diagnostic character as the eyes are often subequal in size and species of other genera may have the anterior medians large. Posterior median eyes usually their diameter or less apart. Clypeus often concave. Chelicerae very small without teeth; fang long and flat (Figs. 11, 12). Legs I or IV slightly the longest. Longest patella-tibia 1 to 2 times length of carapace. Abdomen often modified, sometimes wider than long, heart-shaped or higher than long, sometimes sclerotized with a dorsal scutum or with humps (Figs.

40-43). Abdomen sometimes dark reddish in color. Related species often differ in coloration and shape of abdomen. Colulus replaced by two setae.

Female with four seminal receptacles (Fig. 48); ducts ventral to receptacles, so that the cleared epigynum is more diagnostic than is the dorsal view of the seminal receptacles. Palpus with median apophysis often attached to tegulum, ducts looping through it. Radix usually present; if absent, median apophysis a separate sclerite. Duct long, looping through median apophysis, often taking a tortuous course through tegulum (Figs. 49-51). Left embolus, if long, usually pointing counterclockwise.

Separated from most theridiid genera by having four subequal seminal receptacles in female. Separated from *Euryopis* by having a radix, or if radix is absent, by having median apophysis a separate sclerite; sometimes by having a more winding duct in the tegulum; and always by having the colulus replaced by two setae. The high carapace of males readily separates many species of *Dipoena,* as such carapace modification is unknown in other genera.

Cosmopolitan. Probably all feed on ants.

Umfila granulata Keyserling superficially resembles *Euryopis spinigera* O.P.-Cambridge; however, the carapace has grooves (Fig. 55), and the palpus is complex; the cymbium is modified and the nonfunctional median apophysis has moved to a proximal position (Fig. 57). *Paoningia turriceps* Schenkel (Fig. 62) has a high *Dipoena* carapace illustrated by Schenkel. *Stictoxena sertata* Simon (Figs. 60, 61) is probably *Dipoena* although the embolus resembles that of *Theridion.* The median apophysis and radix are fused (Fig. 61). *Trigonobothrys excisus* Simon is a *Dipoena;* the female (Fig. 54) and male (Figs. 52, 53) do not belong together. The palpus resembles that of the American *Dipoena alta* Keyserling; it might be the same species although the dorsal abdominal scutum of *D. alta* is flat, and that of *T. excisus* has humps (Fig. 52). Hickman (1951, Papers Proc. Roy. Soc. Tasmania, 1950; pp. 3-24) placed the genera *Trigonobothrys* and *Atkinsonia* close to *Ulesanis* [*Phoroncidia*] because of the sclerotized ring around the spinnerets and the heavy sclerotization. His excellent drawings however, show that *Trigonobothrys* is a *Dipoena,* and *Atkinsonia* is a *Euryopis.* Hickman apparently did not realize that heavy sclerotization may be found in groups other than those allied to *Phoroncidia.*

AUDIFIA Keyserling

Figures 63-66

Carapace and sternum elongate (Figs. 63, 64). Chelicerae very small, probably without teeth. Abdomen with sclerotized ring around spinnerets, and sclerotized pedicel (Fig. 64). Colulus replaced by two setae.

Four seminal receptacles in female (Fig. 65). Male unknown.

Separated from *Dipoena* by elongate prosoma, from *Phoroncidia* by its longer legs and by having four seminal receptacles.

Females of three species known, two from South America, one from the Congo.

B. Theridiids with one pair of seminal receptacles in female, and lacking colulus.

PARATHERIDULA Levi

Figures 67, 68

Carapace as in *Theridion*, not modified. Chelicerae with two teeth on anterior margin, one of them compound; a small tooth on posterior margin in female. Leg I longest; first patella-tibia 1.3 to 1.4 times length of carapace. Abdomen subspherical. No colulus.

Palpus very simple; conductor, median apophysis, radix absent (Figs. 67, 68).

Separated from *Theridula* male by absence of distal haematodocha in palpus, from *Theridion* male by simple palpus. Small tooth on posterior margin of chelicerae separates the female from *Theridion* and allied genera.

Only one species known, widespread in warm parts of America.

THERIDULA Emerton

Figures 69-71

Carapace as in *Theridion*, not modified. Chelicerae with two teeth on anterior margin, none posterior. Leg I longest; patella-tibia 1.2 to 1.5 times length of carapace. Abdomen wider than long (Fig. 69). No colulus.

Palpus very simple, conductor, median apophysis, radix absent. Haematodocha fastens both ends of tegulum to the cymbium (Fig. 71).

Females may be difficult to separate from groups of *Theridion* that have abdomen wider than long. Separated from *Paratheridula* and *Theridion* males by the structure of the palpus. In no other theridiid genus is there a distal haematodocha.

Several similar species in all warm regions and eastern North America.

HISTAGONIA Simon

Figures 72, 73

Carapace as in *Theridion,* not modified. Chelicerae small; fang half length of basal segment. Legs of medium length. Abdomen subspherical, not modified. Colulus probably absent. Very small in size.

Female with two seminal receptacles. Palpus with series of teeth on tip of cymbium; cymbium extending beyond alveolus. Embolus with coiled tip, duct coiled, probably no median apophysis; radix absent (Fig. 72). (As the only specimen had one palpus, its examination was superficial.)

Separated from *Achaearanea* by coiled duct in male palpus.

Probably this is a good genus, but a careful anatomical study of the palpus may reveal synonymy of this genus with *Achaearanea.*

Only one species known, from South Africa.

ACHAEARANEA Strand

Figures 74-81

Carapace as in *Theridion,* not modified. Chelicerae without teeth, or rarely with a small tooth, sometimes a small keel, on anterior margin. Labium variable in shape, never separated from sternum. Leg I longest; first patella-tibia 1.2 to 2.5 times length of carapace. Abdomen usually higher than long; sometimes with one hump, rarely two; sometimes longer than wide or high. Abdomen often with a characteristic pattern of irregular streaks on sides (Figs. 79, 80), sometimes with the posterior portion white (Fig. 81). No colulus. Small to very large in size (1-10 mm total length). Males slightly smaller than females or of equal size.

Epigynum often a knob or depression. Palpus with tegulum spherical, median apophysis broadly attached to tegulum or attached to embolus with which it forms one sclerite (Figs. 74, 76, 77, 78). Radix absent. Cymbium often extending beyond alveolus.

Separated from *Theridion, Chrysso,* and *Tidarren* by palpal structure, lack of radix, and broad attachment of median apophysis to the tegulum or embolus. Females may be difficult to place, but in most species the high abdomen and characteristic streaky patterns suggest *Achaearanea.*

Cosmopolitan.

Dipoenura pyramidalis Simon may be the same as *Achaearanea conigera* (Simon) (Fig. 81), a southern European species known only from juvenile specimens.

CYLLOGNATHA L. Koch

Figures 82-86

Carapace flat and long. Male chelicerae very strong, slightly elongate with one large tooth on anterior margin. Legs very long, leg I longest. Venter of femur I of male with thorns (Fig. 86). Abdomen much longer than wide, that of male with sclerotized ring around pedicel (Fig. 86). No colulus.

Palpus probably without radix; cymbium extended beyond alveolus. The palpus (Fig. 82) resembles (?superficially) that of *Theridion atropunctatum* Petrunkevitch.

Separated from *Theridion, Coleosoma* and other genera by ventral thorns of femora I of male, and by long abdomen. No characters are known that separate females from *Theridion* and *Coleosoma.*

Several species from Samoa.

TIDARREN Chamberlin and Ivie

Figures 87-89

Carapace as in *Theridion,* not modified. Chelicerae without teeth or with one on anterior margin, none posterior. Male with only one palpus. Leg I longest, first patella-tibia 1.4 to 1.6 times carapace length. Abdomen higher than long, sometimes with a tubercle on posterior dorsal tip; sides streaked; a white posterior line from tip to spinnerets (Fig. 89). No colulus. Total length of females 2.5 to 6.0 times that of male.

Epigynum a projecting knob. Only one large palpus [the other palpus is removed by spider on becoming mature]. Palpus (Fig. 88) with radix, median apophysis and very large conductor; cymbium irregularly shaped, extending beyond alveolus.

Separated from *Achaearanea* by having a radix and free median apophysis in the palpus, and by having only one palpus in adult males. The high abdomen with streaky marks and white stripe will separate females from *Theridion* and other genera (except *Achaearanea*).

Several similar species from warmer parts of America and Africa.

THERIDION Walckenaer

Figures 1, 16, 17, 90-102

Carapace not modified. Chelicerae with no teeth, one or two teeth on anterior margin, none posterior (Figs. 16, 17); chelicerae sometimes elongate in males. Legs usually long; leg I longest, first patella-tibia 1.5 to 3 times carapace length. Abdomen usually suboval or subspherical (Fig. 93), sometimes wider than long. Male abdomen sometimes with a narrow anterior sclerotized ring around pedicel. No colulus.

Epigynum of various shapes. Palpus has all sclerites present (Figs. 94, 95).

Separated from *Chrysso, Coleosoma, Tidarren, Achaearanea* by having the abdomen suboval, subspherical, sometimes wider than long; from *Achaearanea* and *Tidarren* by having the cymbium only rarely extended beyond the alveolus; from *Achaearanea* by having a radix (only rarely secondarily absent) and a free median apophysis in the palpus; from *Tidarren* by having two palpi; and from *Thymoites* by larger size, longer legs and by never having the eye region of the carapace modified. It is difficult to recognize unaccompanied females of *Theridion* and related genera lacking the colulus, and the placement of some species in *Theridion* or *Thymoites* is arbitrary.

Cosmopolitan. Probably several hundred species.

Neottiura bimaculata (Linnaeus) is tentatively considered to belong to *Theridion,* despite having a retrolateral thorn on femur IV of the male and a modified palpal cymbium. *Theridion suaveolus* Simon bridges the gap between other *Theridion* and *Neottiura bimaculata. Tobesoa theridioides* Keyserling (Figs. 100-102) is a *Theridion. Propostira quadrangulata* Simon (Figs. 96, 97) is known only from a female and is probably a *Theridion* although it might belong to *Achaearanea. Phaetoticus modestus* Simon (Figs. 98, 99), in spite of relatively short thick legs, with first patella-tibia slightly longer than carapace, probably belongs to *Theridion;* the duct of the female internal genitalia loops anterior to the seminal receptacles (Fig. 98).

Coleosoma O.P.-Cambridge

Figures 103-107

Carapace of females as in *Theridion,* not modified; that of male oval with projecting clypeus. Chelicerae small, without teeth or with one or two teeth on anterior margin; none posterior, except that female of *C. acutiventer* Keyserling has one large tooth posterior. Leg I longest; first patella-tibia about 1.5 times carapace length. Female abdomen suboval or with a tubercle above and posterior to spinnerets as in *Chrysso.* Male abdomen sometimes constricted in middle. Anterior of male abdomen always has a sclerotized ring covering anterior half of venter (Figs. 105, 106), with a carina above. No colulus.

Epigynum lightly sclerotized, consisting of indistinct slits or a depression. Palpus with all sclerites present as in *Theridion;* embolus prominent on venter, left one pointing clockwise (Figs. 103, 104, 107).

Separated from *Theridion* by oval, projecting clypeus of male and by sclerotized ring around anterior of abdomen and half of venter. No characters are known that separate females from *Theridion* or *Chrysso.*

Cosmotropical; four species known.

Chrysso O.P.-Cambridge

Figures 22, 108-117

Carapace as in *Theridion,* not modified. Chelicerae with no teeth or one to three teeth on anterior margin, none posterior or sometimes several small teeth (Fig. 22), e.g. *Chrysso elegans* (Taczanowski) [= *Chrysso albomaculata* O.P.-Cambridge]. Legs often very long, leg I longer than IV; first patella-tibia 1.2 to 5 times carapace length. Abdomen usually longer than wide or high, very rarely higher than long, with a tubercle or tip above and posterior to spinnerets; sometimes furrows on sides (Figs. 108-111). No colulus. Often brightly colored with patches of black and white in alcoholic specimens.

Epigynum often with openings indistinct; sacs or connecting ducts joining openings and seminal receptacles. Palpus with cymbium often shallow, variously shaped; paracymbial hook indistinct. Median apophysis and radix separate sclerites.

Separated from *Theridion* by shape of abdomen; from *Achaearanea* by having a radix and free median apophysis in the palpus, and usually also by the shape of the abdomen; from *Coleosoma* by lacking the anterior sclerotized ring around the male abdomen.

Known from Asia and Americas.

The species placed in *Chrysso* are quite diverse. The type species and others close to it have been illustrated in Levi, "1955" [1957]. It is not known whether the species placed in this genus are monophyletic. The common occurrence of modifications in the cymbium (rare in *Theridion*), suggests that members of the group, despite variously shaped palpi, are closely related. *Meotipa* is synonymized; the type *M. picturata* Simon is known only from a female (Figs. 112, 113). It has one tooth on the anterior margin of the chelicerae, long maxillae and the abdomen looks like that of *M. clementinae* Petrunkevitch (Fig. 110). *Physcoa scintillans,* known from a female, probably belongs to this genus. The genitalia (Figs. 116, 117) are similar to those of *C. indicifer* Chamberlin and Ivie. *Arctachaea* Levi is also included in *Chrysso* because of several intermediate species, illustrated in a paper in preparation.

THYMOITES Keyserling

Figures 118-133

Eye region of males of most species (not all) bulging or projecting, sometimes with a seam between eyes or on clypeus below eyes (Figs. 121-124, 132); carapace of female not modified. Chelicerae with one tooth on anterior margin, none posterior. Legs usually short, leg I or IV longest; the longest patella-tibia 0.9 to 1.8 times length of carapace. Abdomen suboval, sometimes with ventral and dorsal sclerotized plates in males. No colulus. Color often brownish, orange or yellow-brown, without pattern, except sometimes a dusky, indistinct, longitudinal band on dorsum of abdomen, or discrete black spots. Usually less than 2.5 mm, most species less than 1.5 mm total length.

Openings of epigynum often indistinct but transparent epigynum shows some ducts (Fig. 119). Palpus with all sclerites present, or radix sometimes reduced or absent (Fig. 125).

Separated from other small theridiids by lack of colulus; from *Theridion* by having male carapace often modified, male abdomen sometimes sclerotized, relatively short legs, small size, yellowish color and by lacking a pattern on dorsum of abdomen. Some species probably intergrade with *Theridion* and are thus difficult to place.

Probably world-wide in warm regions.

Several genera of small theridiids are here considered synonyms of *Thymoites* because no characters are known to differentiate them. While the synonymy of *Sphyrotinus, Paidisca* and *Brontosauriella* (Figs. 131, 132) is in no doubt, the types of several other genera are known from only one sex. *Hypobares unisignatus* Simon (Figs. 128-130) belongs in this genus, as does *Philto subtilis* Simon (Fig. 133). *Thonastica praemollis* Simon (Figs. 126, 127) probably belongs here, but is known only from a female.

MOLIONE Thorell

Figures 134-138

Carapace as in *Theridion,* not modified. Chelicerae as long as carapace is high, probably with two teeth on anterior margin. Abdomen higher than long, with three large dorsal, lightly sclerotized spines and a sclerotized ring around spinnerets (Figs. 134-136). Colulus absent.

Epigynum sclerotized with openings indistinct (Fig. 138).

Separated from *Theridion* by spines on abdomen and sclerotized ring around spinnerets.

Only females of two species known, from Singapore and Ceylon.

COSCINIDA Simon

Figures 139-149

Carapace as in *Theridion* but eyes very large, close together; posterior medians separated by their diameter or less (Figs. 144, 145), closer to laterals than to each other. Eye region black (Figs. 144, 145). Leg IV longest; fourth patella-tibia 1.2 to 1.7 times carapace length. Abdomen longer than wide or high. No colulus. Often gray abdomen has a white spot above spinnerets.

Walls of female connecting ducts sclerotized (Figs. 139, 146). Palpus with all sclerites present; embolus on ventral side, pointing clockwise in left palpus (Figs. 141, 148, 149).

Separated from other genera by large eyes, relatively close together; from *Stemmops* by lacking colulus; from *Theridion* by the longer, flatter abdomen and thicker legs.

In warm parts of Africa and America.

It is uncertain whether a single character (absence of colulus) warrants keeping the genus distinct from *Stemmops*.

Theridiella monticola Tullgren (Fig. 149) is the same species as *Loxonychia lugubris* Tullgren (Figs. 146-148). The type specimen of the former has the palpus expanded (Fig. 149). It belongs to the genus *Coscinida.*

DIPOENURA Simon

Figures 150-159

Carapace, sternum sclerotized. Chelicerae small with one blunt tooth on anterior margin. Abdomen extended beyond and above spinnerets with four tubercles at posterior tip (Figs. 155, 156, 159). Colulus probably absent.

Epigyna of two species examined have openings in a central depression (Figs. 151, 158). Palpus with functional median apophysis, radix, conductor; embolus in part supported by tegulum and subtegulum (Fig. 154).

Separated from *Thymoites* by shape and coloration of abdomen and by the structure of the palpus; from *Argyrodes* by lack of colulus.

From Indochina, Africa; there are three species, two of which are illustrated, *D. fimbriata* Simon (Figs. 150-156) and *D. cyclosoides* (Simon) (Figs. 157-159). *Dipoenura pyramidalis* (Simon) probably belongs to the genus *Archaearanea,* and is known only from juveniles: the available name would be *A. conigera* (Simon) (Fig. 81).

HELVIBIS Keyserling

Figures 160-168

Carapace heavily sclerotized, suboval (Figs. 160, 163), of various shapes sometimes with posterior extension or stalk. Chelicerae small with a compound tooth on anterior margin, none posterior. Legs very long, first patella-tibia 1 to 2 times length of carapace. Tarsal comb may be absent. Abdomen extended beyond spinnerets; male with a sclerotized ring around pedicel. No colulus.

Connecting ducts of female very long, tortuous, and difficult to follow (Fig. 161). Palpus contains all sclerites: threadlike embolus very long (Fig. 166), supported by S-shaped conductor. Cymbium extending beyond alveolus.

Separated from *Theridion* by shape of carapace and extension of abdomen beyond spinnerets; from *Audifia* by having only two seminal receptacles and lacking colulus; from *Hetschkia* by structure of palpus; from *Chrysso* by modified carapace, and by having a sclerotized ring around anterior end of abdomen in males.

Known only from tropical America.

Species placed by Keyserling in *Formicinoides* have similar genitalia but a slightly different carapace shape (Figs. 167, 168). Various species of *Helvibis* differ more in carapace shape than in genitalia; the genitalia are similar in all species.

TOMOXENA Simon

Figures 169-171

Carapace almost circular. Probably no teeth on chelicerae. Legs very long, first patella-tibia 3 times length of carapace. Leg IV longer than I. Abdomen subtriangular, widest anteriorly, with silvery spots (Fig. 171). Colulus absent.

Two seminal receptacles in female with ducts winding around them (Fig. 169); male unknown.

Separated from *Chrysso* and *Theridion* by the shape of the abdomen and by having fourth legs longer than first; from *Spintharus* by lacking colulus; from *Euryopis* by having only one pair of seminal receptacles. It is possible, however, that *Tomoxena* is an exceptional species of *Euryopis*, with only one pair of receptacles.

Two species from India and Sumatra.

HETSCHKIA Keyserling

Figures 172-177

Carapace sclerotized, suboval with a posterior stalk in both sexes (Fig. 174). Chelicerae probably with two teeth on anterior margin. Abdomen oval in outline. No colulus.

Palpus contains all sclerites; paracymbial hook near ectal margin of cymbium (Figs. 175-177).

Separated from *Theridion* by carapace shape; from *Helvibis* by having a short embolus and conductor and by suboval abdomen.

Only one species known, from Brazil.

CEPHALOBARES O.P.-Cambridge

Figures 178-183

Anterior part of carapace enormously swollen in both sexes (Fig. 178). Chelicerae very small. Abdomen longer than wide;

extended beyond spinnerets; with posterior tubercles (Fig. 178). No colulus.

Two seminal receptacles. Palpus contains all the usual sclerites and apparently an additional one (Figs. 181, 182).

Separated from *Thymoites* by shape of abdomen, from other genera by carapace shape or lack of colulus, or both.

Only one species known, from Ceylon.

C. Theridiids with one pair of seminal receptacles in female, colulus replaced by two setae.

Anelosimus Simon

Figures 18, 19, 184, 185

Carapace as in *Theridion,* lightly sclerotized and not modified, but often elongate or pear-shaped (Fig. 184). Chelicerae with several teeth on anterior margin, 2 to 5 denticles posterior (Fig. 18). Leg I longest, first patella-tibia 1 to 2 times carapace length. Abdomen suboval, often slightly elongate, and often with dark median dorsal stripe [except for *A. attritus* (Nicolet) whose abdomen is subtriangular with two humps, side by side]. Colulus replaced by two setae.

Epigynum often with transverse folds; seminal receptacles often small; connecting ducts usually thin walled, sac-like. Palpus with all sclerites present, median apophysis inconspicuous, elongate in all species known (Fig. 185).

Separated from *Theridion* by having two setae replacing colulus and by cheliceral teeth.

Cosmopolitan.

Stemmops O.P.-Cambridge

Figures 186-188

Carapace as in *Theridion,* lightly sclerotized and not modified except eyes very large, close together. Posterior eyes equally spaced or closer to laterals, posterior medians touching or less than ⅓ their diameter from laterals. Anterior median eyes usually smaller than posterior medians (Fig. 188). Eye region black, except between posterior medians. Chelicerae small, probably without teeth. Leg IV longer than I, fourth patella-tibia 1.5 to 1.6 times carapace length. Abdomen slightly flattened, longer than wide. Colulus replaced by two short setae. Abdomen often with a white spot above spinnerets on uniform gray (Fig. 188).

Walls of female connecting ducts sclerotized. Palpus complex, with all sclerites present (Fig. 187).

Separated from other genera by large eyes, relatively close together, and short stout legs; from *Euryopis* by having only two seminal receptacles in female; from *Coscinida* by having colulus replaced by two setae.

In warm parts of America.

It is uncertain whether splitting the species into *Stemmops* and *Coscinida* on the basis of only one character, the colulus setae, is warranted. Better judgment can be made after more species are available for study.

CEROCIDA Simon

Figures 189-195

Cephalothorax sclerotized with posterior stalk and raised reticulate pattern in both male and female (Fig. 189). Chelicerae small, probably without teeth. Legs long, the first patella-tibia as long as or slightly longer than carapace. Abdomen small, higher than long; male with sclerotized ring around pedicel and ring around spinnerets (Figs. 189, 190). Colulus replaced by two setae.

Seminal receptacles with long duct wrapped around them (Fig. 194). Palpus with embolus long, probably all sclerites present. The translucent palpus with its large haematodocha is difficult to study (Figs. 191-193).

Separated from *Helvibis* by presence of colulus setae; from *Styposis* by having the palpal embolus facing ventrally.

Only one species known, from Venezuela, Guianas.

TEKELLINA Levi

Figures 196, 197

Carapace as in *Theridion,* weakly sclerotized and not modified. Chelicerae lacking teeth. Leg I longer than IV; first patella-tibia 1.6 times length of carapace. Abdomen wider than long. Colulus replaced by two setae. Small spiders, less than 1.3 mm total length.

Palpus with end of median apophysis lying against paracymbial hook near margin of cymbium. Cymbium almost circular (Fig. 196).

Separated from symphytognathids by having a colulus replaced by two setae and by absence of teeth on chelicerae; from other small theridiids by structure of palpus (Fig. 197).

Only one species known, from Florida.

CHROSIOTHES Simon

Figures 198-202

Carapace weakly sclerotized, sometimes highest in thoracic region, often with a wide black band, eyes with red pigment. Posterior eyes equally spaced or sometimes slightly closer to each other than to laterals; their radius or more apart. Chelicerae without teeth. Legs sometimes rather heavy, first or fourth leg longest. Longest patella-tibia 1 to 1.7 times carapace length. Abdomen variously shaped, subtriangular, suboval, or with a hump on each side; rarely oval in outline; usually with venter black, particularly area overhanging pedicel (Figs. 201, 202). Colulus replaced by two setae. Total length of male less than two-thirds total length of female.

Epigynum with an oval depression. Connecting duct of female forming a pair of coils posterior to seminal receptacles (Fig. 198). Palpus with conductor absent or minute. Cymbium modified to support tip of long embolus. Radix and median apophysis present (Figs. 199, 200). Median apophysis may be broadly attached to tegulum.

The cymbium (supporting embolus), absence of conductor, coiled connecting ducts, and coloration are diagnostic and separate this genus from *Episinus* and *Spintharus,* which also have the abdomen variously shaped. Unaccompanied females with the abdomen oval are, except for coloration, difficult to separate from *Anelosimus.*

Known only from warm parts of America.

The species of this genus, when revised, were placed in *Theridiotis* Levi (1954). *Theridiotis probabilis* (O.P.-Cambridge) is a synonym of *C. silvaticus* Simon.

SPINTHARUS Hentz

Figures 203-206

Carapace nearly circular. Posterior median eyes separated by about three diameters (Fig. 203). Chelicerae small. Legs long, first patella-tibia 1.5 to 3.0 times carapace length. Abdomen longer than wide, widest anterior to middle (Figs. 203, 204).

Colulus replaced by two setae. Anterior spinnerets each with a spigot (Fig. 217).

Palpus with all sclerites present (Fig. 206). Median apophysis broadly attached to tegulum, but separated by a seam. Duct looping through median apophysis.

Separated from *Argyrodes* by having two setae in place of colulus; from *Episinus* by different abdominal shape, by lacking tubercles in eye region and by having a simpler palpus; from *Thwaitesia* by lacking silvery spots and having posterior median eyes farther apart. *Spintharus* is close to both *Episinus* and *Thwaitesia*, and some species probably are intermediate.

Several species from the Americas.

THWAITESIA O.P.-Cambridge

Figures 13, 207-219

Carapace nearly circular (Fig. 211). Posterior median eyes separated by about their diameter or less. Chelicerae small, without teeth (Fig. 13). Legs long, first patella-tibia 2.0 to 3.5 times carapace length. Abdomen usually higher than wide (Figs. 207, 212) with silvery spots. Colulus replaced by two setae. Anterior spinnerets each with a spigot (Fig. 217).

Palpus with all sclerites present (Fig. 216).

Separated from *Argyrodes* by having two setae in place of colulus; from *Episinus* by different shape of abdomen, by lacking tubercles in the eye region and by simpler palpus. *Thwaitesia* differs from *Spintharus* by having the posterior median eyes closer together and having silvery plates covering the abdomen. *Thwaitesia* is close to *Spintharus* and *Episinus* and some species probably are intermediate. The genus may have to be fused with *Spintharus*.

Probably world-wide in tropics.

Hildbolda simoni Keyserling has the abdomen wider than high with silvery spots. The female genitalia (Figs. 218, 219) are similar to those of other species of *Thwaitesia*. *Topo bracteatus* Exline is very close to *T. affinis* O.P.-Cambridge.

EPISINUS Latreille

Figures 220-230

Carapace often with a pair of tubercles between anterior and posterior median eyes, often with a deep longitudinal thoracic depression (Figs. 220, 221). Eyes often on slight tubercles;

lateral eyes sometimes separated. Red pigment often in eye region. Chelicerae small with a tooth on anterior margin or no teeth. First leg longest; first patella-tibia 1.4 to 2.8 times carapace length. Abdomen flat, usually modified with humps or nipples, widest behind middle (Figs. 220, 221). Often light colored or with gray marks on abdomen. Colulus replaced by two setae. A tiny spigot on anterior spinnerets.

Palpus extremely complex, all structures proliferated and large, connected by large haematodocha.

The modified abdomen separates *Episinus* from other genera with colulus replaced by two setae; tubercles in eye region, the shape and color of the abdomen and complex palpus separates it from *Spintharus.*

Cosmopolitan, mainly in warmer areas.

Hyocrea implexa Simon (Fig. 226) is known only from an early instar juvenile that has the abdomen like other *Episinus.* The badly preserved female type of *Hyptimorpha mirabilis* Strand (Figs. 224, 225) has the eyes on tubercles and the clypeus projecting; it is probably *Episinus. Moneta spinigera* O.P.-Cambridge (Figs. 228-230) is an *Episinus. Penictis mucronata* Simon, described from a juvenile, is probably *Episinus;* the abdomen is widest in front and has a pair of humps in the middle. *Plocamis theridioides* Simon (Figs. 222, 223) has the coloration and shape of *Episinus;* the abdomen is widest at the posterior end.

STYPOSIS Simon

Figures 231-233

Carapace as long as wide, sometimes longer than wide with a short posterior stalk, some species weakly sclerotized but sometimes heavily sclerotized with a raised reticulate pattern (Fig. 231). Six large eyes arranged in two groups of three touching each other, or eight eyes with anterior medians minute, their maximum diameter equal to radius of posterior medians. Chelicerae small with one or two compound teeth on anterior margin, none posterior. Leg I longer than IV, first patella-tibia 1.4 to 2.7 times carapace length. Abdomen soft, suboval, subspherical or wider than long. Colulus replaced by two setae slightly anterior of usual position, very hard to see. Except for eyes, pigmentless white in alcohol. Small spiders less than 1.8 mm total length.

Female genitalia with two seminal receptacles. Male palpus weakly sclerotized, parts translucent and hard to see. Bulb twisted so that embolus faces outside (and is partly hidden by cymbium) and median apophysis faces ventrally (Figs. 232, 233).

Separated from *Thymoites, Cerocida* and *Theridion* by the number and size of eyes and by the structure of the palpus. *Pholcomma hirsuta* Emerton is intermediate with *Styposis* but has larger anterior median eyes, and denticles on the posterior cheliceral margin; its palpus is like that of *Styposis. Pholcomma gibbum* (Westring) has similar eyes, but a different palpus.

Warm parts of America.

Pholcomma Thorell

Figure 234

Cephalothorax often sclerotized. Eyes sometimes close together, posterior medians closer to laterals than to each other; anterior medians usually smallest. Chelicerae with 3 to 4 teeth on anterior margin, 2 to 4 minute denticles posterior. Legs short, longest patella-tibia equal to length of carapace or shorter. Metatarsi or tarsi of equal length or tarsi shorter. Tarsal comb on leg IV reduced or absent. Abdomen sometimes sclerotized in female, always in male, suboval in outline. Colulus replaced by two setae. Small spiders, less than 1.8 mm total length.

Sometimes ducts of female widened, forming additional seminal receptacles. Palpus with paracymbial hook on margin of cymbium. End of median apophysis not lying against paracymbial hook; tegulum tube-shaped rather than spherical (Fig. 234).

Separated from *Thymoites* and *Comaroma* by colulus setae; from *Stemmops* by smaller size, structure of chelicerae and sclerotized abdomen. *Pholcomma gibbum* (Westring) has eyes somewhat similar to those of *Styposis,* but the bulb of the palpus has the embolus on the venter. *Pholcomma hirsuta* Emerton has the bulb of the palpus twisted as in *Styposis,* but has larger anterior median eyes, and has denticles on the posterior cheliceral margin. *Pholcomma* and *Styposis* are probably closely related and some species may be intermediate.

Cosmopolitan.

The type species and North American species have been illustrated previously (Levi, 1957).

No characters that would separate *Armigera* Marples from *Pholcomma* were found in several specimens of *Armigera* examined.

PHORONCIDIA Westwood

Figures 235-247

Carapace with eye region projecting anteriorly, overhanging clypeus (Figs. 235, 244). Chelicerae small. Legs very short, leg IV longer than I. Abdomen heavily sclerotized, of various shapes; often leathery, folded, or with strong spines (Figs. 235, 244, 247). Sclerotized ring around spinnerets. Colulus replaced by two setae, often very difficult to see, hidden by sclerotized ring.

Epigynum a sclerotized plate with openings indistinct (Figs. 236, 246). Palpus with paracymbial hook on edge of cymbium, median apophysis probably not lying against it (Fig. 245).

Readily separated from other theridiid genera by shape and heavy sclerotization of abdomen, and projecting eye region of carapace.

Cosmopolitan, but absent from western North America and temperate Europe.

The specimens of *P. aculeata* Westwood (the type species, Figs. 235-237) examined were determined by Berland. In abdominal shape this species is intermediate between what has been called *Ulesanis* by American arachnologists, and the spiny *Phoroncidia*. The genitalia are similar to those of *Ulesanis* and the two genera should be combined. Only details of genitalia separate the Japanese *Sudabe pilula* Karsch from the North American *Phoroncidia americana* (Emerton) (Fig. 244); otherwise the species could be confused. The genitalia and carapace shape of *Wibrada longiceps* Keyserling (Figs. 240-243) suggest that it is a *Phoroncidia. Heribertus rubromaculata* Keyserling is probably a *Phoroncidia;* the abdomen is flattened. Specimens placed in *Tricantha* differ only in shape of abdomen (Fig. 247).

WIRADA Keyserling

Figures 248-250

Carapace with eye region projecting; clypeus fairly straight, sloping back toward base of chelicerae. Carapace and sternum tuberculate (Fig. 250). Chelicerae small with two teeth on anterior margin, none posterior (in *W. tovarensis* Simon). Legs short, leg IV slightly longer than I. Tarsi longer than metatarsi. Abdomen similar in both sexes, dorsoventrally flattened, covered completely with a circular sclerotized dorsal shield. A large shield surrounds pedicel and most of venter and a sclerotized ring surrounds spinnerets. Colulus replaced by two setae, but sometimes difficult to see, hidden by sclerotized ring.

Epigynum heavily sclerotized with distinct openings. Two large seminal receptacles present. Palpus with paracymbial hook functional. The embolus continues proximally. The shape of this proximal extension might indicate that it is homologous with the median apophysis (Fig. 249). If this is true, the large triangular sclerite that fits into the paracymbial hook is the radix. It would be the only genus in which the radix fits against the paracymbial hook.

The carapace and sternum are tuberculate as in spiders of the genus *Crustulina;* however, *Wirada* differs in lacking the distal process on the palpal cymbium and in having two setae replacing the colulus. *Wirada* differs from *Dipoena* in having only two seminal receptacles; from *Phoroncidia* by having the carapace and sternum tuberculate, and by a different palpal structure. The relatively simple palpus and the long tarsi are as in the family Symphytognathidae. Perhaps, like many symphytognathids, *Wirada* lacks lungs. Lack of specimens prevented a detailed study. Unlike symphytognathids, *Wirada* lacks teeth on the posterior margin of the chelicerae.

Two South American species.

D. Theridiids with a large colulus.

Theonoe Simon

Figures 251-252

Carapace robust, high. Chelicerae with four anterior teeth. Legs short; leg IV longer than I; length of fourth patella-tibia half to equal carapace length. Tarsi longer than metatarsi. Abdomen oval. Colulus large. Very small, less than 1.5 mm total length.

Epigynum with openings indistinct. Palpus with median apophysis fused to embolus. Radix absent. Cymbium extends beyond alveolus (Fig. 251).

Separated from *Achaearanea* by large colulus and oval abdomen, from *Comaroma* and symphytognathids by structure of palpus (Fig. 251).

Only two very similar species known, one from Europe, the other from North America.

The long tarsi and the relatively simple palpus combined with a large colulus indicate relationship of this genus to *Mysmena* and other symphytognathids.

LATRODECTUS Walckenaer

Figures 14, 15, 253, 254

Carapace rather wide in thoracic region. Lateral eyes separated. Chelicerae without teeth (Figs. 14, 15). First patella-tibia 1.5 to 2.2 times carapace length. Abdomen globular. Colulus large. Bite poisonous to some vertebrates.

Epigynum sclerotized, with ovoid depression. Two dumbbell-shaped seminal receptacles (Fig. 254) and coiled connecting ducts (Fig. 253). Palpus with irregularly shaped cymbium, long coiled embolus, sclerotized radix, median apophysis and small conductor.

Separated from most genera by large colulus; from *Steatoda* by toothless chelicerae and by dumbbell-shaped seminal receptacles.

Six very similar species.

Cosmopolitan, absent from colder portions of Eurasia.

STEATODA Sundevall

Figures 255-271

Carapace as in *Theridion*, but relatively narrow in eye region and more heavily sclerotized (Fig. 260). Male with stridulating ridges posterior on each side. Lateral eyes sometimes separated. Chelicerae sometimes enlarged in male, with one or two teeth on anterior margin, none posterior in females. Leg I or IV longest; longest patella-tibia 0.8 to 2 times carapace length. Abdomen suboval, male with more or less sclerotized ring around pedicel with stridulating structures. Usually abdomen reddish brown to purplish black, often with a white line around anterior margin (Figs. 259, 260). Colulus large.

Two seminal receptacles present and usually a pair of thin-walled sacs (Fig. 269). Palpus with all sclerites, usually a large radix (Fig. 258), paracymbial hook in back of cymbium, not on margin.

The separation of this genus from *Enoplognatha* is probably arbitrary. Separated from females of *Enoplognatha* by lacking tooth on posterior margin of chelicerae; from males by having paracymbial hook in back of cymbium, not on outside margin; or if the hook is on outside margin, chelicerae are not enlarged. *Steatoda* is not close to *Dipoena*. The large colulus, structure of the chelicerae, two seminal receptacles, structure of the palpus of *Steatoda* removes it from *Dipoena*, even though some species of both genera (as well as of other genera) may have the anterior median eyes largest.

Cosmopolitan.

As a result of defining the genus on eye position, a character variable even within individual species (Levi, "1959" [1960]), there are numerous synonyms for *Steatoda*, genera based on type species having the eyes slightly different in size or position.

Ancocoelus livens Simon (Figs. 266-268) differs from other species only in that the median apophysis and paracymbial hook do not touch. The eye region is relatively narrow. *Ancocoelus* is the most distinct of the genera synonymized with *Steatoda*. No characters are known that separate *Stethopoma cingulatum* Thorell (Figs. 264, 265), *Steassa marmorata* Simon (Fig. 263), and *Argyroelus micans* Hogg (Figs. 269, 271) from *Steatoda*. *Asagenella erigoniformis* (O.P.-Cambridge) (Figs. 261, 262) is a *Steatoda*; it has been known in America by the name *S. septemmaculata* (Keyserling) [= *Lithyphantes septemmaculata* Keyserling].

CRUSTULINA Menge

Figures 272-274

Carapace, sternum covered with tubercles (Fig. 272). No teeth on posterior margin of chelicerae. Leg I or IV longest. Longest patella-tibia slightly longer or shorter than carapace length. Abdomen with sclerotized ring around pedicel in both sexes. Colulus large. Brownish coloration.

Epigynum with a raised transverse bridge. Palpal cymbium with median distal process (Figs. 273, 274). Embolus complicated, with a large hook; radix and median apophysis present (Fig. 274).

Separated from *Robertus* and *Enoplognatha* by lack of teeth on the posterior margin of chelicerae; from *Steatoda* by tubercles on carapace; from all three by distal process of palpal cymbium.

Several similar species.

Known from Europe and North America; some species have been described from Africa.

CRASPEDISIA Simon

Figures 275-280

Carapace of female as in *Steatoda*, that of male with a projection on clypeus (Fig. 276). Chelicerae with a tooth on anterior margin. Abdomen oval, with (broken) sclerotized ring around pedicel in both sexes (Fig. 275). Some sclerotized spots on venter. Colulus large.

Epigynum with a raised transverse bridge as in allied genera. Palpus with all sclerites; paracymbial hook on rim of cymbium, and a large complex embolus (Fig. 280).

Male separated from *Crustulina* and *Steatoda* by clypeal projection; female separated from *Crustulina* by smoother carapace, from *Steatoda* by sclerotized ring around pedicel.

Only two species known, from tropical America.

ENOPLOGNATHA Pavesi

Figures 20, 21, 281-285

Carapace as in *Steatoda*, not modified. Chelicerae of male enlarged (Fig. 281), chelicerae of female with several teeth on anterior margin, one tooth posterior(Figs. 20, 21). First or fourth leg longest. Longest patella-tibia 1 to 1.8 times carapace length. Abdomen suboval. Abdomen of male with a carina above pedicel, sometimes dorsum sclerotized. Colulus large. Usually dark colored, with a dorsal pattern on abdomen; white pigment, if present, in minute spots.

Epigynum heavily sclerotized. Palpus with all sclerites, paracymbium on margin of cymbium, and a prominent radix supporting embolus (Fig. 282).

Females separated from *Robertus* and *Steatoda* by having one tooth on posterior margin of chelicerae, males by structure of palpus. It is believed that there are species intermediate between *Steatoda* and *Enoplognatha.*

Cosmopolitan.

Symopagia oreophila Simon (Figs. 283-285) is an *Enoplognatha;* it has a tooth on posterior margin of the chelicerae; the carapace is highest in the thoracic region.

ICONA Forster

Figures 286-289

Carapace as in *Steatoda,* not modified but less sclerotized. Chelicerae straight with two teeth on anterior margin, one posterior. Legs of medium length. Abdomen suboval. Colulus large. Light colored.

Female epigynum with openings leading into two atria, these into the seminal receptacles (Figs. 287, 288). Male palpus with a large conductor, large embolus, and large radix; median apophysis very small, not functional in holding bulb against cymbium; paracymbial hook near margin. Cymbium suboval in outline (Figs. 286, 289).

Separated from *Enoplognatha* by different structure of palpus, and by being very lightly sclerotized.

One species, from New Zealand.

ROBERTUS O.P.-Cambridge

Figures 290, 291

Carapace sclerotized, rounded in front, rather high; clypeus rounded. Chelicerae strong, with three large anterior teeth and two posterior denticles or teeth. Legs relatively short and strong; first subequal to fourth. First patella-tibia equal to carapace length or slightly shorter. Abdomen oval. Colulus large. Abdomen uniformly colored without pattern.

Palpus with all sclerites present, but reduced, and relatively simple in shape (probably secondarily) (Figs. 290, 291). Cymbium widest at proximal end, tapering to a relatively narrow tip. Paracymbial hook on margin (Fig. 291).

Separated from *Comaroma* by having eight eyes or anterior medians subequal to the others and from *Enoplognatha* by having several denticles on the posterior cheliceral margin, by not having male chelicerae enlarged, and by lacking a pattern on the dorsum of the abdomen.

Probably only Europe and North America.

COMAROMA Bertkau

Figures 292-294

Carapace as in *Steatoda*, but heavily sclerotized. Six eyes, or if eight, then diameter of anterior medians less than radius of posterior eyes. Chelicerae strong with three anterior teeth and posterior denticles. First and fourth legs subequal. First patella-tibia slightly shorter than carapace. Tarsus slightly longer than metatarsus. Abdomen very heavily sclerotized. Large colulus. Small size, less than 1.5 mm total length.

Epigynum with openings indistinct. Palpus with paracymbium on rim of cymbium, median apophysis reduced in size and not functional in holding bulb against cymbium; embolus of complex shape (Fig. 294).

Separated from *Phoroncidia* and *Pholcomma* by large colulus, from *Robertus* by heavy sclerotization of abdomen and reduced anterior median eyes. This genus may be close to Symphytognathidae.

Two species known from southeastern Europe, one from California and one or two from Japan.

Archerius mendocino Levi (from California) differs from *Comaroma simoni* Bertkau (found in Europe) in being smaller and in details of the genitalia.

SYNOTAXUS Simon

Figures 295-298

Carapace slightly flattened, eyes overhanging clypeus. Chelicerae small, probably with one or two teeth on the anterior margin, none posterior. Legs very long, first femur 1.5 times length of body. Abdomen with a long extension beyond spinnerets (Fig. 295). Colulus large. Uniformly white in color.

Palpus with paracymbium absent; median apophysis very small; conductor may be absent. Haematodocha may attach bulb to dorsum of alveolus of cymbium rather than to proximal end. Palpal patella of male has a spur (Fig. 298).

Separated from *Argyrodes* by palpal patellar spur, and by unmodified eye region of male.

Only four species known, from South America.

ARGYRODES Simon

Figures 6, 299-305

Carapace of male with eye and clypeal region usually swollen, projecting, or with a seam below eyes (Figs. 299, 301). Chelicerae with one to several teeth on anterior margin, one, and sometimes denticles, on posterior margin. Legs sometimes long, first longest. Comb often absent or reduced to a few setae. Fourth tarsal claws shifted and facing retro-laterally (or comb possibly prolateral). Middle tarsal claw longer than laterals (Fig. 6). Abdomen sometimes higher than long, but usually extending beyond spinnerets, filiform or often with tubercles on posterior end (Figs. 303-305). Large colulus usually with only two setae.

Palpus with all sclerites present (Fig. 302).

Warm parts of the world, commensals in webs of other spiders.

The shape of the eye region of males and the unusual shape of the abdomen separate this genus from others having a colulus.

Faiditus ecaudatus Keyserling is an *Argyrodes* (*F. bruneoviridis* Mello-Leitão belongs in *Episinus*). In a revision of American species of *Argyrodes, Rhomphaea* and *Ariamnes* (Exline and Levi, 1962), it has not been possible to find characters that keep these genera apart. *Argyrodes elevatus* Taczanowski and *A. bonadea* (Karsch) are similar to the type species, illustrated in the revision of American species.

Genera Transferred to Other Families

Characters of families related to Theridiidae are discussed above and need not be repeated here.

No specimens of *Dubiaranea argenteovittata* Mello-Leitão were available for study. It is believed to be a Linyphiidae, although its placement remains uncertain. *Sedasta ferox* Simon (Fig. 306) was described from juveniles and though the correct placement is uncertain, it is not a theridiid. The colulus is replaced by two setae; the posterior cheliceral margin has a denticle, the anterior margin is bare. The chelicerae are very large. The abdomen is slightly pointed behind. *Perania pallida* Thorell (Fig. 307), described from a juvenile female, has a small colulus with two setae, only six eyes, and a keel on each of the chelicerae. No other theridiids are known to have a long cheliceral keel. The abdomen is soft, the legs of medium length, as in *Theridion*. There is a very slightly sclerotized ring around the spinnerets. *Phaedima granulosa* Thorell (Fig. 308) is very similar to *Perania pallida;* it is very heavily sclerotized, total length 6 mm; the chelicerae are as in *Perania* and there are only six eyes. It is likely that *Perania pallida* is a juvenile female of *Phaedima granulosa* Thorell. Both come from Sumatra. They are probably Tetrablemmidae.

Most members of the family Symphytognathidae were formerly placed with the theridiids. Most are small species. The following species, all types of genera, have to be transferred to Symphytognathidae: *Mysmena leucoplagiata* (Simon), *Cepheia longiseta* Simon (Figs. 309, 310), *Synaphris letourneuxi* Simon (Fig. 311), *Tamasesia rotunda* Marples, *Taphiassa impressa* Simon (Figs. 312, 313), *Troglonota granulum* Simon (Figs. 314-316), *Zangherella minima* Caporiacco (Figs. 317-320), the six eyed *Epeethina circinata* Simon (Figs. 321-323) and *Mysmenopsis femoralis* Simon. The last species has been illustrated by

W. J. Gertsch (1960) from our sketches. Lack of knowledge of generic characters in the family prevented detailed description at the time we examined the specimens. The very small size of the specimens and the paucity of material made it impossible to make detailed sketches of the palpi.

The type of *Artonis* Simon, *Anania biturberculata* Thorell (Fig. 324), is an argiopid. The abdomen resembles that of *Chrysso* or *Argyrodes;* it is longer than wide or high and has a pair of tubercles at the posterior dorsal tip. The chelicerae have many teeth like those of Argiopidae. Specimens of *Chorizoopes frontalis* O.P.-Cambridge are located in the Paris museum; these specimens, determined by Simon, may not be the types. They are argiopids having a large colulus; the anterior margin of each chelicera has a row of large denticles, becoming long teeth at the proximal end. The argiopid-like palpus has the paracymbial hook at the base of the cymbium. *Paurotylus depressus* Tullgren was recognized by Tullgren as an argiopid. Petrunkevitch (1928) erroneously placed *Paurotylus* into the Theridiidae. Unfortunately he has been followed by others who, like Petrunkevitch, presumably have not examined the specimens.

Mecynidis dentipalpis Simon (Figs. 325-327) is probably a linyphiid but may be an argiopid. The paracymbium (P in Fig. 327) seems to be a separate sclerite, although this is not certain. The carapace is wide anteriorly as in some argiopids. The palpal femur has a row of thorns. Two-thirds of the dorsum of the abdomen is covered by a scutum. The chelicerae have two very large teeth on the anterior margin, and only two on the posterior. The types of *Liger incompta* O.P.-Cambridge were thought to be lost and another specimen accidentally introduced into the vial. However, Cambridge's poor illustrations seem to have been made from the specimen in the vial, a typical linyphiid (Figs. 328, 329). We compared the description and original illustration with the specimen and believe it is the type.

Theridilella zygops Chamberlin and Ivie, known only from an immature female, is a theridiosomatid, probably of the genus *Theridiosoma*. Specimens examined of *Spheropistha melanosoma* Yaginuma, also described from the female only, at first seemed puzzling. It resembled a *Dipoena* but had a large colulus. It is believed now to belong to the theridiosomatids, although this can be made certain only by finding a male. We agree with the late Miss Bryant, who illustrated the species, that *Tekella absidata* Urquhart, is probably a theridiosomatid, possibly an argiopid.

Enthorodea atricolor Simon (Figs. 330-332), also known from the female only, is believed to be a *Theridiosoma.*

R. R. Forster (*in litt.*) suggested that the genus *Nicodamus* (Figs. 333, 334) belongs to the family Zodariidae.

Relationships

The Theridiidae are generally considered more primitive than the related families Linyphiidae and Argiopidae. Evidence comes not only from the increased structural complexity of genitalia in the latter two families, but also from their behavior. Theridiids build irregular webs, while the orb-webs of argiopids and the sheet-webs of linyphiids may be considered evolutionary refinements. The simple palpus of Symphytognathidae is probably a secondary simplification, as evidenced by vestiges of sclerites, and by the orb-webs built by some species.

The relationship of different theridiid genera to each other is puzzling. The Theridiidae can not be split into subfamilies, with one possible exception. *Dipoena* and *Euryopis* (and perhaps *Audifia*) might represent a separate line of evolution, judging by the presence of four seminal receptacles rather than two, by the tendency of the palpal duct to be tortuous and travel through the length of the median apophysis (also found in some other theridiids), by the relatively large eye area, and by the long flat fang of the chelicerae (Figs. 9, 10), probably for catching ants. However, these two genera are not distinct and often careful examination is necessary for correct generic placement. Other genera have a tendency to auxillary lobes in the connecting ducts (i.e., *Pholcomma*). Some species of *Euryopis* have only two seminal receptacles. The fact that these species have a relatively simple palpus resembling that of *Achaearanea* may be of significance in postulating the origin of the group. Another genus, *Theridula,* has a genitalic plan that is quite different and might also represent a separate evolutionary line. Allied to *Theridula* might be *Paratheridula.* The latter genus, however, has more generalized genitalia and, as its former inclusion in the genus *Theridion* indicates, few other differences. While other genera fall into groups, for instance: *Steatoda-Latrodectus-Crustulina-Enoplognatha; Episinus-Spintharus-Thwaitesia; Chrysso-Coleosoma-Theridion-Thymoites,* there is no evidence that they are sufficiently distinct to be considered subfamilies. For separating genera, considerable weight is given to the size of the colulus. The phylogenetic value of this structure should, however,

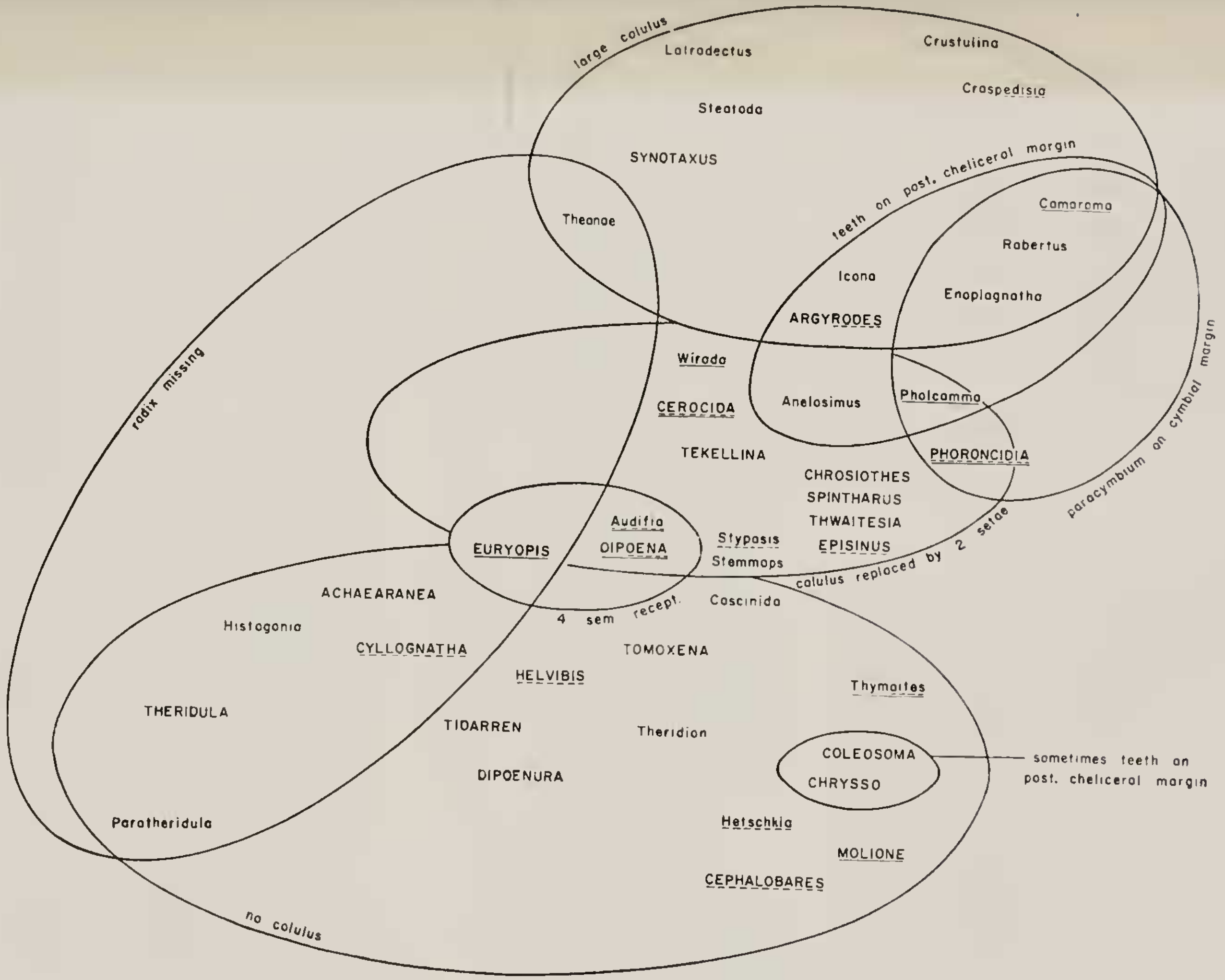

TABLE 2.

Theridiid genera. Circles represent characters believed to be of phylogenetic importance. Genera printed in lower case have abdomen generally spherical to longer than wide and high. Genera printed in upper case have abdomen generally modified higher than long, with humps, wider than long, or extended beyond spinnerets. Underlined genera may have the abdomen heavily sclerotized with scutes, and sclerotized ring around spinnerets. A dotted line indicates that the carapace shape may be modified, half a dotted line indicates modification in the male only. Such a modified carapace may be stalked, ovoid, have the eye region projecting or may have horns, projections in clypeal or eye region.

not be over-rated. Some *Euryopis* lack a colulus, others have two setae in its place. The only difference between *Coscinida* and *Stemmops* is that the former lacks a colulus, while in *Stemmops* it is replaced by two setae. Thus the two might still be considered one genus. On the other hand, the few genera having a large colulus are probably closely related, judging by the genitalia, and are probably more distinct from others. This latter group is closest in genitalic structure to the family Argiopidae. Some of the group criteria used by Simon have no phylogenetic significance by modern standards, and would obscure natural groups of genera. For instance, Simon considered the large anterior median eyes of some *Steatoda* and some *Dipoena* to be sufficiently important to relate these otherwise very different genera. And Simon's criterion of heavy sclerotization would have combined the otherwise very different genera *Thymoites*, *Phoroncidia*, and *Comaroma*.

It is believed that structures like the radix and median apophysis may have evolved several times (Levi, 1961).

The diagram (Table 2) attempts to organize characters and genera. No attempt was made to connect the genera by a phylogenetic tree. The genera on the lower left have the simplest and probably most primitive genitalia, and those on top are the most complex and probably most advanced.

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